LAKE WACCAMAW STATE PARK

GENERAL MANAGEMENT PLAN

North Carolina Department of Environment and Natural Resources

Division of Parks and Recreation

March 19, 2007

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GENERAL MANAGEMENT PLAN

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INTRODUCTION

Planning is an essential element of effective and efficient park administration and management. The North Carolina General Assembly acknowledged its importance by passing state parks system legislation that includes planning requirements.

The 1987 State Parks Act (G.S.114-44.7 through 114-44.14) stipulates that a State Parks System Plan be prepared. The first plan was completed in December 1988. It evaluated the statewide significance of each park, identified duplications and deficiencies in the system, described the resources of the system, proposed solutions to problems, described anticipated trends, and recommended means and methods to accommodate trends. The most recent update of the Systemwide Plan was completed in December 2000.

The State Parks Act also requires each park to have an individual general management plan. The general management plans are required to:

> *...include a statement of purpose for the park based upon its relationship to the System Plan and its classification. An analysis of the major resources and facilities on hand to achieve those purposes shall be completed along with a statement of management direction. The general management plan shall be revised as necessary to comply with the System Plan and to achieve the purpose of the [State Parks Act].*

The general management plan (GMP) is to be a comprehensive five-year plan of management for a park unit. A GMP's function is to:

1. Describe park resources and facilities;
2. State the purpose and importance of each park unit;
3. Outline interpretive themes and propose locations for informational and interpretive facilities;
4. Analyze park and recreation demands and trends in the park's service area;
5. Summarize the primary laws guiding park operations;
6. Identify internal and external threats to park natural and cultural resources, and propose appropriate responses;
7. Identify and set priorities for capital improvement needs;
8. Analyze visitor services and propose efficient, effective, and appropriate means of responding to visitor needs; and
9. Review park operations and identify actions to support efficient and effective park administrative procedures.

The GMP for Lake Waccamaw State Park, developed with public involvement, is intended to serve these purposes.

I. DESCRIPTION OF LAKE WACCAMAW STATE PARK

LOCATION AND ACCESS

Lake Waccamaw State Park is located in Columbus County, 38 miles west of Wilmington and 12 miles east of Whiteville (Figure I-1).

From I-95, travel southeast on US 74, continuing east on the highway after it merges with US 76. After passing Whiteville, travel approximately 12 miles. Signs on this highway will direct you to the park. Turn right on Chauncey Town Road and left on NC 214. Turn right on Jefferson Road. Before the road takes a sharp right at the lake, turn left on Bella Coola Road. Follow Bella Coola Road until its end at Lake Waccamaw State Park.

From I-40 at Wilmington, take US 74/76 west for approximately 38 miles. Signs on this highway will direct you to the park. Turn left on Firetower Road and left on NC 214. Turn right on Jefferson Road. Before the road takes a sharp right at the lake, turn left on Bella Coola Road. Follow Bella Coola Road until its end at Lake Waccamaw State Park.

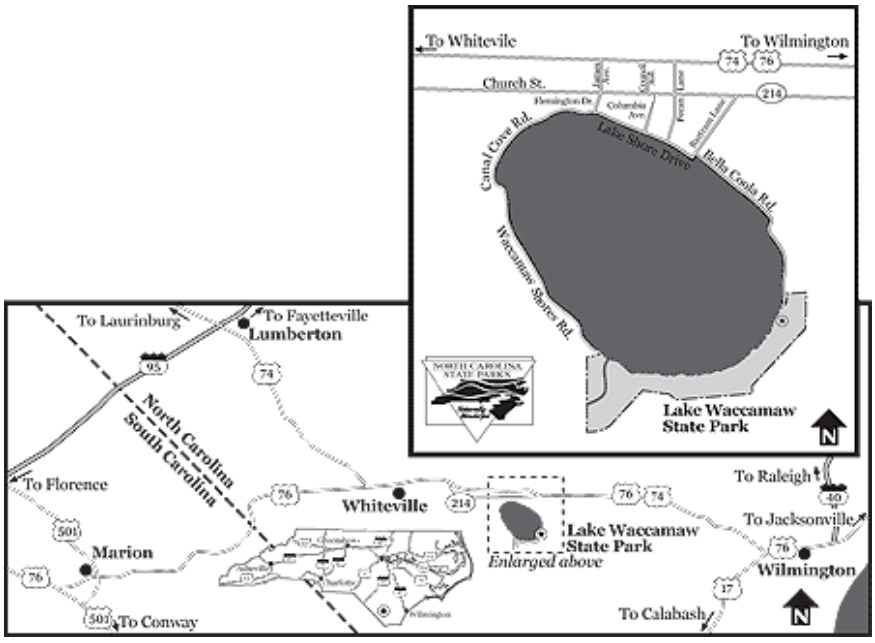

Figure I.1. Location Map for Lake Waccamaw State Park

The park mailing address, telephone number and email address are:

Lake Waccamaw State Park
1866 State Park Drive
Lake Waccamaw, NC 28450

(910) 646-4748
(910) 646-4915 - fax
lake.waccamaw@ncmail.net

PARK LAND AND WATER

As of January 1, 2006, Lake Waccamaw State Park consisted of 10,694 acres that included the 8,950-acre state lake. Lake Waccamaw is one of hundreds of Carolina bays in North Carolina. The term "bay" does not refer to a body of water; rather, the name for these natural basins originates from the fact that there is an abundance of sweet bay, loblolly bay and red bay trees growing beside these watery, oval depressions in the earth.

The Bladen Lakes area contains one of the largest concentrations of Carolina bays. These elliptical, southeast-northwest oriented depressions are found scattered over much of the Coastal Plain of North Carolina and South Carolina. Over many years, most of these shallow bays have filled in with sediment and vegetation. Some—including Lake Waccamaw—contain open water. Jones, Salters, Baytree, Singletary and White lakes are nearby bay lakes with open water that are also in the state parks system. While all Carolina bays are unusual, Lake Waccamaw is probably the most unique.

While many bays are small, ranging about 500 feet in length, Lake Waccamaw covers more than 8,950 acres and has 14 miles of shoreline. Many bays are also totally dependent on rainfall, but Lake Waccamaw gets its water supply from the Friar Swamp drainage. Most Carolina bays also have naturally high levels of acid, making the water unable to sustain a large diversity of aquatic life. Limestone bluffs along Lake Waccamaw's north shore and a partial limestone lakebed neutralize the lake's water, however, making it suitable for many species of plants and animals.

At least five species on the state's rare plant list—the Venus-hair fern, green-fly orchid, seven-angled pipewort, narrowleaf yellow pondlily and water arrowhead—can be found at Lake Waccamaw State Park. Longleaf pine is abundant, as well as a variety of oaks. Huckleberries are plentiful and the ground is thickly covered with wire grass.

Lake Waccamaw's water quality contributes to an interesting mix of animal life in the park. Several species are found only in or around the lake and nowhere else on earth. These species are known as endemics. At Lake Waccamaw, fish endemics include the Waccamaw darter, Waccamaw silverside, and Waccamaw killifish. The water also contains a diversity of unusual mollusks. The endemic Waccamaw spike and Waccamaw fatmucket are among the 15 species of mussels and clams found in the lake. And, of the 11 snail species, the Waccamaw amnicola and the Waccamaw siltsnail are also endemics. Of course, the park also contains non-endemic species including a variety of birds and waterfowl, frogs, lizards, deer, bobcat, fox, black bear and the American alligator.

VISITOR FACILITIES

Lake Waccamaw State Park offers a variety of recreational opportunities, including boating, camping, fishing, hiking, and picnicking (Figure I-2). Boating is a popular pastime at Lake Waccamaw. While there is no boat access in the park, two free public boat launch areas are available nearby. The N.C. Wildlife Resources Commission maintains one, while the other one is operated by Columbus County Parks and Recreation. Powerboats and sailboats may be launched from the boat ramps, but parking is limited.

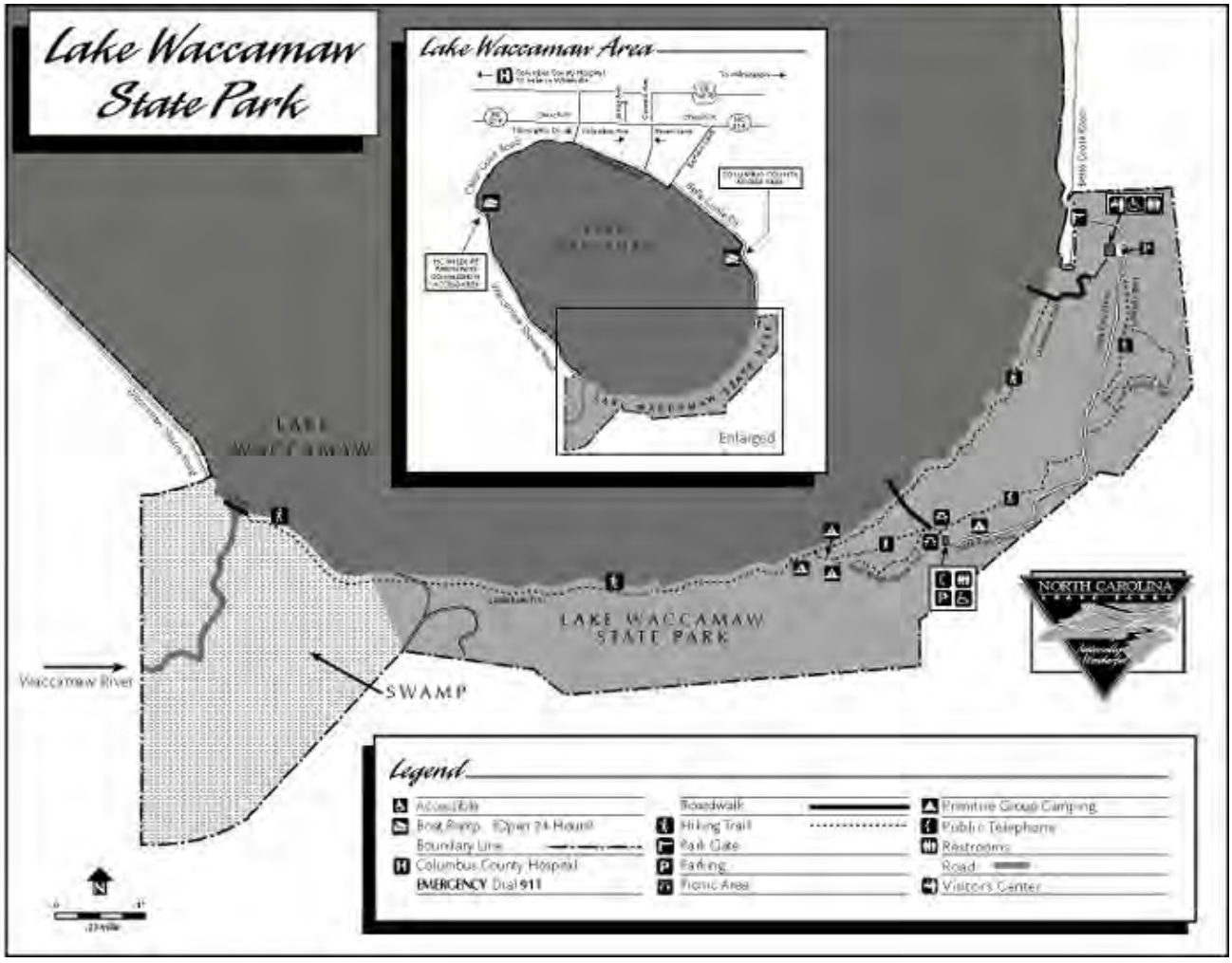

Figure I-2. Lake Waccamaw State Park

Four primitive group camping areas are nestled beneath trees not far from the water. Picnic tables, fire circles and pit toilets are located nearby. All supplies, including drinking water, must be packed to the sites.

Fishing is good. Fifty-two species of game and non-game fish swim in Lake Waccamaw. The Wildlife Resources Commission stocks the lake with largemouth bass, bluegill, shellcracker and redbreast sunfish.

Almost ten miles of trails allow visitors to experience a variety of natural communities. Lake Trail, the park's longest, begins at the visitor's center and stretches five miles along the lakeshore to the Waccamaw River. It passes pine forest, old cypress, towering hickory trees, grass beds in the lake and sandy beaches. The 2.5-mile Pine Woods Trail, which winds from the picnic area to the visitor's center, and two loop trails explore the park's diverse plant life. A 700-foot boardwalk near the picnic area allows hikers to get a closer look at the various plants of the bay forest bordering the lake. The boardwalk ends at a 375-foot pier perfect for fishing. An additional accessible boardwalk with two sun shelters traverses the bay forest located near the visitor's center.

At the picnic area, picnic tables and grills are conveniently placed beneath large oak trees draped with Spanish moss. Drinking water and restrooms are nearby. The picnic area and the restrooms, as well as some picnic tables, are accessible for persons with disabilities.

Rangers hold regularly scheduled educational and interpretive programs about Lake Waccamaw State Park. The Lake Waccamaw program introduces students to the unique ecosystem of this particular Carolina bay, focusing on water chemistry and the lake's diversity of aquatic life.

HISTORY OF LAKE WACCAMAW

Lake Waccamaw is one of the state's few natural lakes and, at 8,950 acres, the largest natural lake in southeastern North Carolina. Like Lake Waccamaw, most of the state's natural lakes are located in the Coastal Plain and are referred to as Carolina bays. The term "bay" stems from the abundance of bay trees growing in the swampy depressions. Stager and Cahoon's interpretation of the geologic history of the Lake Waccamaw area, analysis of sediment cores, and review of other research data leads them to conclude that Lake Waccamaw is a relatively young lake, probably about 15,000 years old or less (Stager and Cahoon, 1987).

The Bladen Lakes area contains one of the largest concentrations of Carolina bays. These elliptical, southeast-northwest oriented depressions are found scattered over much of the Coastal Plain of North Carolina and South Carolina. Many hypotheses regarding their origin have been proposed, including underground springs, wind and wave action, dissolution of subsurface minerals and meteor showers. The oriented lakes theory (wind and wave action) is best supported by scientific evidence. Over many years, most of these shallow bays have filled in with sediment and vegetation (N.C. Geological Survey, 1989). Lake Waccamaw is an example of a Carolina bay that is still water filled.

John Bartram, the nation's first renowned botanist, discussed the area and stayed at a plantation in Bladen County while in the area (Bartram, 1942). In a pamphlet titled *A New Voyage to Georgia by a Young Gentleman*, originally published in London in 1737, the young man who had traveled up from Georgia and while in the area stayed at the plantation of Nathaniel Moore writes of Lake Waccamaw:

> *The great desire I had to see Waccamaw Lake, as I had heard so much talk of it…. the innumerable sight of musquetoes, and the largest that ever I saw in my life, for they made nothing to fetch blood of us, through our buckskin gloves, coats and jackets…. The next morning we took a particular view of it, and I think it is the pleasantest place that ever I saw in my life. It is at least eighteen miles round, surrounded with exceeding good land, as oak of all sorts, hickory and fine cypress swamps.*

But Bartram, the unknown young gentleman, and other European explorers and settlers were not the first to find this paradise. Archaeologists have discovered evidence of civilization at Lake Waccamaw dating back thousands of years.

Before arrival of white settlers, Lake Waccamaw was inhabited by the Waccamaw –Sioux, one of five Indian tribes found along the Cape Fear River. The Waccamaw-Sioux settled in the area some time after A.D. 1000. Many Indian artifacts from the period between A.D. 1000-1700 have been

found, including beads, pipes, grinding stones, dugout canoes, and fragments of pottery with intricate stamped designs.

The old lake road was at one time part of an Indian trail that ran from Lake Waccamaw to the Outer Banks. Jones Ridge, on the east shore of the lake, is still sometimes referred to as the "Indian Mounds." Indians fished, hunted, and lived off the land. The great Indian chieftain Osceola was supposedly born at Lake Waccamaw. He later led the Florida Seminoles in their war against the U.S. Government in the early 1800's (*Lake Waccamaw State Park Master Plan*, 1976).

Lake Waccamaw gets its name from the Waccamaw Indian tribe. The lake first appears on the Mosely Map in 1733 (Powell, 1968). The bay lakes region of Bladen County was settled during colonial times, primarily by Highland Scots who came to the Cape Fear River Valley seeking religious freedom. John Powell was the first Caucasian to build a homestead on Lake Waccamaw's shores, traveling from Virginia in 1745. Settlement was slow until the 1850s when the naval stores and railroad industries brought in more people. The Town of Lake Waccamaw, located on the north shore of the lake, was known as Flemington from as early as 1853 to about 1885 (Powell, 1968).

Bladen County, formed in 1734 from New Hanover County, was originally a huge area. Of the 100 counties now in North Carolina, 55 were once a part of Bladen County (Elizabethtown-White Lake Area Chamber of Commerce). Although it has been greatly reduced in size, Bladen County remains North Carolina's fourth largest county.

For approximately 100 years after the area was settled, landowners practiced farming along the river lowlands and creek bottoms. Settlers in the bay lakes region generally led lives of marginal subsistence. Longleaf pines, then prolific in the area, were used for the production of naval stores, primarily providing turpentine, pitch and timber. These products were critical for building and maintaining sailing vessels of the period. As rivers were then the most effective means of transportation, naval stores and other products were rafted down the Cape Fear River to the port of Wilmington. Many longleaf pine trees in the park still carry the marks of the turpentiners who hacked the trees.

In 1797, for a little more than $7,000, the State of North Carolina made grants to Stephen Williams for 100,000 acres of land, to William Collins for 40,120 acres, and to Benjamin Rowell for 30,000 acres. These grants were all located on the east side of the lake – where the park is now located – and adjoined each other. In 1904, the Waccamaw Land and Lumber Company purchased substantially all of this land for timber purposes. The company's headquarters was located nearby in Bolton, where it operated a huge double band sawmill. Logs from the lands purchased in 1904 helped supply the mill. These lands later became owned by Riegel Woodlands Division, subsequently known as the Federal Paper Company.

In early 1869, Charles Oscar Beers began a shingle business along the southern shores of Lake Waccamaw, followed by another shingle operation run by Henry Bascom Short. These two businessmen eventually merged their operations in 1879, with a crew of over 400 workers. Eventually the two merged companies diverged from the production of shingles to become the North Carolina Lumber Company.

At the turn of the century, cypress shingles were shipped across Lake Waccamaw from its south side by flat boats. The shingles were then unloaded onto a pier where they were then transported by

mule-drawn rail cars to the nearby Lake Waccamaw depot for shipment by freight train. Logging and shingle transportation eventually became rail-based. A rail spur followed the west side of the lake and crossed the Waccamaw River just south of the lake. Remnants of the railway bridge crossing can still be seen today (*Lake Waccamaw State Park Master Plan*, 1976).

With its clean water, sandy bottom, and abundant fish populations, Lake Waccamaw has always been a tourist attraction. Attendance increased with the coming of the railroad. In the late 1800s, two passenger trains a day stopped at the Lake Waccamaw depot. Passengers could get a meal at "Miss Lizzie's" boardinghouse and tour the lake on the *Bohemian Girl*, a steamboat operated by Sam Potts. The Atlantic Coast Line built two large pavilions near the lake for picnics, dances, and Fourth of July celebrations.

Sam Potts (1847-1910) moved to Lake Waccamaw in 1867 and worked as a railroad agent and telegrapher. Shortly after his arrival, he built the *Bohemian Girl*, powered by a one-cylinder engine. People from all over the Carolinas and Georgia came to Lake Waccamaw by train to tour the lake with Captain Potts. Potts was a man of many talents: inventor, telegrapher, taxidermist, jewelry salesman, doctor, and sportsman. He was also an excellent photographer. Using a homemade time-delay shutter device, Potts was able to appear in many of his own photographs.

Recognition of State Lakes as Public Resources

Statewide interest in the Carolina bay lakes emerged in the 1820s. During the 1827-1828 legislature, a bill was passed that made it unlawful for anyone to record for private ownership the lands covered by the waters of any lake within North Carolina. The law followed the limitation of the private recording of unappropriated marsh or swamplands that had been enacted during the previous legislature (*State Lakes Master Plan*, 1977). Some such lands and waters held by the State Board of Education were subsequently sold by the state over the years to raise funds for educational purposes.

Recognizing North Carolina's lakes as public resources belonging to the people, the General Assembly of 1911 passed legislation prohibiting the transfer of land covered by lake waters to private ownership. Title of these lakes, held by the State Board of Education, could no longer be sold or transferred to private parties. The legislation assured that Lake Waccamaw would remain a state lake and a public resource unless the North Carolina General Statutes were changed by subsequent legislative action. The legislation directed that:

> *White Lake, Black Lake, Waccamaw Lake, and any other lake in Bladen, Columbus, or Cumberland counties containing 500 acres or more shall never be sold or conveyed to any person, firm or corporation, but shall always be and remain the property of the State of North Carolina for the use and benefit of all the people of the State.* (Chapter 8, G.S. 7544)

While Lake Waccamaw and the other State Lakes were thus assured of remaining public lakes, the General Assembly did not appropriate funds for their management or for any public land acquisition of lakeshore property. Without funding, the Department of Conservation and Development - the state agency charged with administering the lakes - was able to do little with them. Since none of the lakes had been surveyed, the state was even unaware at that time of private claims on the lakes (State of North Carolina, 1926).

The town of Lake Waccamaw was incorporated in 1911 (Powell, 1968). The winter of 1917-1918 brought unusually cold weather to the area. The temperature dropped below freezing almost every night for a month with morning temperatures often below ten degrees, and one of the largest snowstorms in recorded history hit Lake Waccamaw. The extremely cold conditions caused the lake to completely freeze over for the first time anyone could remember. It remained frozen for over a week, and ice measured four to five inches thick. Mr. Kinchen Council became known as the only person ever to walk across Lake Waccamaw (Parker and Little, 2005).

Administration and Management of the State Lake

Local parties were interested in the use and development of the lakes, and by 1925 the Department recognized the need to establish policies regarding their use and "*…planned to regulate recreation only so far as is necessary to insure the best permanent use of the lakes for the public and to prevent the destruction of the attractive features such as fish, game, forests, bathing places, etc*.". Private use of the lakes, already underway with the construction of docks and boathouses, was continued under a permit system. At Lake Waccamaw, five-year renewable permits were issued for nominal fees (State of North Carolina, 1926).

Lake levels at Lake Waccamaw could vary significantly with fluctuations in rainfall, thus causing problems with commercial and recreational use of the shallow lake. To address the problem, local representatives in the 1925 General Assembly were successful in obtaining an appropriation of $3,000, to be matched by county or local sources, to construct a dam across the lake outlet at the Waccamaw River. That summer the lake level was three feet below normal, and exposed lake bottom made it possible to drive to the dam site. With nature cooperating, the dam was constructed during this period of low water and completed by winter at a total cost of $3,900, and the county returned the unexpended state appropriation of $1050 to the state (State of North Carolina, 1926).

After construction began, large numbers of eels became jammed against the dam as they attempted to swim upriver. To proceed with construction, the contractor had to shovel the eels into a truck and haul them to safety. The dam construction included a fish way in order to comply with Federal regulations. By June of 1926, the lake had returned to its normal height.

The Department of Conservation and Development's 1926 *Biennial Report of the Director*, made to the Governor and General Assembly, recommended acquisition of sufficient land - including part of the shoreline of Lake Waccamaw - to insure the permanent use of the lake by the public (State of North Carolina, 1926). Alas, while private lakeshore development continued, that plea and subsequent and numerous departmental appeals over the years for state land acquisition at Lake Waccamaw went unheeded. No state land acquisition at Lake Waccamaw would take place until 50 years later.

Appeals for state land acquisition were made locally as well. The Whiteville newspaper, *The News Reporter*, featured an article June 25, 1925, titled "First Steps are Taken to Make Lake State Park". The article documented efforts underway to secure land for a park and mentioned reasons that the state should own at least some land along Lake Waccamaw. The article also mentions a huge heronry present at the lake including a great number of white heron nests (Parker and Little, 2005).

Not long after completion, the Lake Waccamaw dam began leaking seriously. Under state supervision, repairs were made in 1926 using county and private funds. Not long thereafter,

extremely high water during the winter of 1927-28 caused more dam problems, and additional repairs were undertaken.

The Department of Conservation and Development restocked the lake and took efforts to protect fish during the breeding season by staking off and prohibiting fishing in large sections of the lake from March 15 to June 15, 1928. Albert Sasser of Hallsboro was hired as a part-time lake warden, charged with enforcement of rules and regulations (State of North Carolina, 1928) made by the Conservation Board and by the Director of the Department. The public seemed generally satisfied with the administrative measures undertaken.

Prior to 1929, only the construction of new docks required permits. Thereafter, all docks and buildings needed permits. Permits were also instituted for the operation of boats on Lake Waccamaw and White Lake, and licenses were required to be fastened to watercraft. Commercial boats were charged an additional fee.

The Department adopted a policy of allowing no more closed buildings over the lake and sought removal of those that existed in order to do away with a source of water pollution. Waggaman Pavilion, one such closed structure, had suffered from a storm which destroyed a dock that connected it to shore, and its sanitary conveniences were out of order due to a fire that had destroyed the Waggaman Hotel.

Construction of the dam had greatly improved the value of Lake Waccamaw as a recreation resource by maintaining a fairly constant lake level, making it more attractive as a bathing, boating and fishing resort. The dam, constructed cheaply using wood, continued to have serious leaks, and in 1930 the Engineering Division recommended construction of a new and more permanent dam. Meanwhile, periodic repairs were made.

Efforts to improve sport fishing in the lake also continued. Following requests from local citizens and a full public hearing, trot lines were allowed by permit during three winter months starting in November of 1929 in the belief that this practice would reduce the number of "*undesirable*" scavenger fish (State of North Carolina, 1930). In May of 1931 7,850 black bass fry from the Fayetteville Hatchery were put in Lake Waccamaw. The experimental winter permitting of trot lines continued, partly because of "*…the apparent need of the local people for help in furnishing their table*." After three winters, a total of 65 permits had been issued at $1 each. Required reports filed by permittees indicated that of the almost 4,000 fish caught, 60 percent were catfish and 18 percent white perch.

The lake level through the winter and spring of 1932 was at an extremely low level, partly due to the periodic leaking of the dam but mainly due to lack of rainfall. The low water interfered with the use of private docks along the north side of the lake that were used for boating and swimming. As a result of this low water, a legal question arose over the Department's jurisdiction over that part of the lake bottom no longer covered by water. The Attorney General ruled that "*…whether the lake bottom is covered with water or not, the state property line is the normal high water mark.*"

A lake warden continued to be employed by the state at Lake Waccamaw during the summer months. The Department supplied its outboard motor, while the warden supplied his own boat (State of North Carolina, 1932). The Board of Conservation and Development in July 1932 approved public regulations covering the recreational use of Lake Waccamaw by bathers, boaters and

fishermen. An application to repair the Waggaman Pavilion over the lake, a source of pollution and trouble, was denied. State administration of Lake Waccamaw continued to be handicapped by lack of funds, boats, and state land along the shoreline, and by the difficulty of securing sufficient evidence to convict in cases of rules violations. Only 14 permits were issued for trot line fishing in the winter of 1932-33, probably due to the successful prosecution of a case involving the selling of fish caught in the lake, and no such permits were issued the succeeding winter because of the absence of a lake warden. Low water resulted in a few permits being granted for dock extensions. Lack of funds resulted in no lake warden being employed at Lake Waccamaw in 1933, and no license fees were required. For 1934, a nearby county game and fish warden allocated half of his time to the lake, but enforcement and the collection of permit and fishing fees was reduced (State of North Carolina, 1934).

In May of 1934, Mr. J.S. Holmes, State Forester, proposed establishment of a state park at Lake Waccamaw in a letter to Mr. Conrad Wirth of the National Park Service. The proposal took shape after discussions with Mr. L.A. Sharpe as well as Mr. Stone about Waccamaw and other potential sites for recreation parks. Later that month, the U.S. Department of the Interior responded to Mr. Holme's letter by recommending further consideration of Waccamaw Lake as a state park. The park proposal involved Forestry Camp number 52-P, which was being abandoned at that time (*Lake Waccamaw State Park Master Plan*, 1976). No state action to establish a park, however, was then taken.

To combat high unemployment and spur the economy during the Great Depression, the federal government undertook various conservation programs. A Civilian Conservation Corps camp was located along the shore of Lake Waccamaw and a permit issued for construction of a dock from this camp (State of North Carolina, 1934). Early in 1936, the Town of Lake Waccamaw was granted a permit to construct a large municipal dock and open pavilion as part of a Works Progress Administration project to build a recreation area for the town. Nearby Jones and Singletary lakes also benefited from work undertaken by federal public works programs (State of North Carolina, 1936).

Fourth and Sixth of July Celebrations

Fourth of July celebrations at Lake Waccamaw were the biggest events of the year. Crowds sometimes exceeded 1,000 people, coming by special trains, wagons, buggies and by foot. Local churches, organizations and groups set up refreshment stands and tents adjacent to the public beach where food, candy and drinks were sold. A traveling carnival with attractions such as merry-go-rounds and various sideshows was usually present, and additional entertainment in the form of beauty contests, races, greased pole climbing, and dance contests was also provided. And of course, people cooled themselves in the waters of the lake.

Problems arose with the celebration. In the early days there were no public accommodations, so many visitors used the swampy woods behind the beach for changing and sanitary purposes. Parking for horses and mules, and then later for cars became problematic, so some local residents opened their yards for parking, some charging a fee. Police were used to manage traffic on the one-way roads. As the event grew in popularity, the Weavers opened a bathhouse with several hundred dressing stalls and built a broad boardwalk and a 200-yard-long pier, later lengthened another 400 feet, with a covered pavilion and diving boards.

During the days of segregation, white people came on the fourth and Negroes on the sixth of July (Parker and Little, 2005). In 1938, the usual yearly July sixth Negro gathering and celebration to which thousands went was not held, and the gathering was permanently discontinued. Reasons given for the cancellation included the absence of adequate sanitary, eating, recreational, and other facilities available for the crowds. Plans were made to continue the celebration the next year at Jones Lake (State of North Carolina, 1938). At that time, the federal Resettlement Administration, using Civilian Conservation Corps workers, was developing recreational facilities at Jones Lake in adjacent Bladen County. Jones Lake State park opened July 1, 1939 as the first state park for Negroes and became immediately popular, clearly demonstrating the need for outdoor recreation facilities for nonwhites (State of North Carolina, 1940).

Administration and Management after 1940

By 1941, the old timber dam constructed in 1925 had serious seepage and the water level in Lake Waccamaw had dropped to what was considered too low a level. The General Assembly directed the governor and Council of State to allocate $10,000 to the Department of Conservation and Development for the reconstruction or construction of a new spillway. The Division of Water Resources prepared specifications and plans and supervised the construction of a new dam (State of North Carolina, 1942). Unfortunately, a serious leak developed in the new dam. Temporary repairs were undertaken and completed by July of 1944. Partly owing to the nature of the site, and partly to vandalism, leaking continued.

During World War II, the shortage of manpower, equipment and supplies, and the institution of gasoline and tire rationing slowed state park activities in general. Conservation work undertaken by federal public works programs, which had been so important to the state parks system, came to an end (State of North Carolina, 1944).

Because of the polio epidemic in the summer of 1944, activities and use of state park areas dropped below even wartime levels. Funds still were not available for hiring a lake warden, but a game warden did give some time to helping out at Lake Waccamaw. This arrangement meant that the lake, which received a large amount of use, still had no direct supervision for eight or nine months a year. The Department of Conservation and Development continued to appeal for the employment of a lake warden on a year-round basis, employment of a temporary warden during the summer, the purchase of patrol boats, and land acquisition at the lake (State of North Carolina, 1946). Lake Waccamaw was not the only state park unit suffering from a lack of fiscal resources. In the first 32 years of the existence of the North Carolina State Parks System, less than $60,000 was spent to purchase state park land. Instead, the state relied primarily upon donations and federal gifts and leases.

In 1946, a canal was dug along the northwest shore between a natural sand bar along the main lake and a fringing cypress swamp. Spoil from the dredging was added to the sand bar. The higher ground was then heavily developed with private residences with piers (Stager and Cahoon, 1987).

Comprehensive and detailed State Lakes regulations were adopted and administration improved, partly due to budget increases from receipts from fees set up in the regulations. With additional funds, the state purchased better patrol equipment and buoys were installed to mark a safety zone in the water. A warden was also employed during the summer (State of North Carolina, 1948) to help with the heavy and often conflicting public and private use. State lakes permits brought in $7909 in

the biennium of 1948-1950 (State of North Carolina, 1950) from the licensing of boats, piers and docks.

A major problem was eliminated at Lake Waccamaw in 1954. Holes dredged in the lake bottom several years earlier by a private development company were filled in at the company's expense (State of North Carolina, 1954). During 1954 and 1955, low water levels due to drought led to the amendment of state lakes regulations to allow longer piers and docks. Rains brought by the hurricanes of August and September of 1955 raised the water level back to normal (State of North Carolina, 1956).

The General Assembly passed the Boating Safety Act of 1959 that proved particularly beneficial to state lakes, such as Lake Waccamaw, where the state had little or no ownership of the shoreline. The Act removed some of the protection and law enforcement responsibilities from the Division of State Parks (State of North Carolina, 1962), which had overseen the state lakes since establishment of the division in 1948, and assigned them to the Wildlife Resources Commission. Without state-owned land at Lake Waccamaw, patrol boats continued to be launched at privately owned ramps or piers, and lack of a place for storage of gasoline and other supplies and equipment continued to hamper lake administration.

Under the Boating Safety Act of 1959, boats over ten horsepower had to be registered. The registration fee charged, along with the state lakes permit fee, was seen as double taxation for the same purpose, so the 1965 General Assembly amended the General Statutes to give the Wildlife Resources Commission exclusive authority to regulate safe and reasonable operation of vessels on waters of the state, including state lakes. State lake revenues, which had reached about $14,000 annually by 1966 and had been used to help manage the state lakes, dropped (State of North Carolina, 1966). In December 1969, State Lakes Regulations were revised to delete all references to boats, boating and law enforcement related to boating regulations.

Establishment of Lake Waccamaw State Park

Over the years, occasional letters from private citizens would be sent to Raleigh advocating development of a state park at Lake Waccamaw. Finally, in October of 1964, the Board of Conservation and Development requested that a "concentrated effort to obtain land for a base of operations at Lake Waccamaw be made." About one-quarter acre of land was offered for sale at less than its appraised value, but the state did not come up with the needed funds for its purchase (*Lake Waccamaw State Park Master Plan,* 1976).

In 1967 the General Assembly authorized a study commission for state parks, the first such study commission. The State Parks and State Forests Study Commission's1969 report, *North Carolina State Parks for the Future*, noted that public use requires access through public lands, and that without public land at Lake Waccamaw, the intent of the law creating state lakes was not being met. The Commission recommended that steps be taken to insure public access (The State Parks and State Forests Study Commission, 1969).

In 1968, the Lake Waccamaw Town Board unanimously adopted a resolution to support establishment of a state park on the south side of the lake. The following year, the General Assembly took steps to establish a park by appropriating $50,000 for land acquisition (Division of Parks and Recreation, 1982), but land acquisition was not immediate.

Other support for the park developed. A 1969 land development plan for the Town of Lake Waccamaw by the N.C. Division of Community Planning included a proposed park along the lakeshore, and in 1971 the Cape Fear Council of Governments declared support (*Lake Waccamaw State Park Master Plan*, 1976).

As North Carolina's development and land prices accelerated, the Division of State Parks urged protection of new park areas as well as expansion of some existing ones before the opportunity to do so would be forever lost. Appeals for additional state park land acquisition throughout the state were made, including the publication in 1972 of *North Carolina State Parks NOW or NEVER*. The booklet described 27 areas proposed as worthy additions to the state parks system, including land along the shore of Lake Waccamaw and the Waccamaw River. As a point of emphasis, the report also described six areas – called "Never Areas" - previously investigated or proposed as state parks but that were no longer feasible to acquire (State of North Carolina, 1972).

Finally, in May of 1976, 65 years after being declared a state lake by the General Assembly, a 273-acre tract known as "Council Ridge" was purchased to establish the park. The Division of Parks and Recreation had already begun planning for the park. Two public meetings were held in April and June of 1976. Citizens were given an opportunity to offer suggestions as to what types of activities and facilities should be included in the park at the first meeting, and they were asked to review and comment on three alternative plans at the second meeting. Using these public comments, the most desired aspects of the alternatives were then amalgamated as a preliminary master plan which was presented to the public at the July 4, 1976 Columbus County Bicentennial Celebration. The final document, the *Lake Waccamaw State Park Master Plan*, was published in July 1976 (*Lake Waccamaw State Park Master Plan*, 1976). The master plan described desired future acquisition and development and a program for phased park development.

Park Development

Without good road access, the Council Ridge Tract had received only very limited use by the public since its acquisition in 1976, and no additional land had been acquired or facilities developed. Recognizing the need to get started with park development, the 1981 General Assembly made a special $100,000 appropriation for access road funds for Lake Waccamaw State Park. The Division completed an environmental impact statement in November 1982 before scheduling the road improvements. At this time about one quarter of the lake's shoreline remained undeveloped, while most of it had been developed or was undergoing residential development. Interspersed within the development were two Wildlife Resources Commission boating access areas, a commercial boating facility, a public beach, and the Waccamaw Sailing Club (Division of Parks and Recreation, 1982).

In 1983, the Division of Parks and Recreation was awarded a Land and Water Conservation Fund matching grant of $30,706 to develop a picnic area, boardwalk and pier, parking, toilet facilities and provide water at Lake Waccamaw State Park. Columbus County became a joint sponsor of the grant and ended up assisting with construction through its parks and recreation department and also provided $30,000 to match the federal funds. The construction was completed in 1984 (National Park Service).

Additional land purchases for the park in the mid-1980s, including acreage formerly belonging to the Federal Paper Company and Georgia-Pacific Corporation, enlarged the park to 1,732 acres. In the 1990s additional facilities were added at the picnic area, and a boardwalk with sun shelters was

constructed. A 5,940 square foot visitor's center/park office, completed in 1998, added greatly to the park's visitor facilities. It contains an auditorium, exhibits about the park's history and natural resources, classroom, administrative offices, and restrooms.

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II. PARK PURPOSES

MISSION STATEMENT FOR THE STATE PARKS SYSTEM

The North Carolina State Parks System exists for the enjoyment, education, health, and inspiration of all our citizens and visitors. The mission of the state parks system is to conserve and protect representative examples of the natural beauty, ecological features and recreation resources of statewide significance; to provide outdoor recreation opportunities in a safe and healthy environment; and to provide education opportunities that promote stewardship of the state's natural heritage.

LAKE WACCAMAW STATE PARK PURPOSE STATEMENT

Lake Waccamaw is one of the state's few natural lakes and, at 8950 acres, the largest water-filled Carolina bay. It has a long history of public ownership that clearly indicates its value as a public trust resource. In 1827, legislation passed that prohibited the lands covered by the waters of any lake in North Carolina from being recorded for private ownership. In 1911, the General Assembly passed legislation declaring that certain lakes containing 500 acres or more were not to be sold but "…*should always be and remain the property of the State of North Carolina for the use and benefit of all the people of the State*…". In May of 1976, a 273-acre parcel on the south side of the lake was purchased and Lake Waccamaw State Park established.

Lake Waccamaw is a water-filled Carolina bay. Carolina bays are found in the loose, unconsolidated sands that form a cover within the Atlantic Coastal Plain, with the greatest concentration of Carolina bays in Bladen County. Their origin has long been a matter of speculation and debate. Carolina bays are oval depressions oriented in a southeast-northwest direction. They are shallow, with the deepest point southeast of the bay's center, and have a raised sand rim, best developed at the southeast end. The term "bay," in this case, refers to the distinctive vegetation – such as loblolly bay – that slowly fills these depressions. Only a few Carolina bays still contain water, as most have filled naturally with sediment and vegetation. Limestone along the north shore and under the lake bed of Lake Waccamaw neutralize the water, making it able to sustain a large diversity of aquatic life, unlike other Carolina bays.

Lake Waccamaw is one of the most unique bodies of water in the world, and it has been classified as an *Outstanding Resource Water* by the state. Its aquatic system contains a number of mollusks and fishes found nowhere else. The lake contains diverse fish fauna including three endemic species: the Waccamaw Darter (*Etheostoma perlongum*), Waccamaw Killifish (*Fundulus waccamawensis*), and Waccamaw Silverside (*Menidia extensa*). The lake also has rich and diverse molluscan fauna comprised of at least eight species of bivalves and three gastropods, including the Waccamaw Snail (*Amnicola* sp.), Waccamaw Fatmucket (*Lampsilis fullerkati*), and Waccamaw Lance (*Elliptio* sp.), all endemic to Lake Waccamaw. At least five species of endangered and threatened species of plants are known to occur in the lake and along its shoreline that includes several types

of natural communities. The lake and its associated habitats host many species of birds including many species of ducks that winter on the lake. The shallow lake margin provides feeding sites for wading species, while other species nest in adjacent swamp forest. Amphibians and reptiles, including the American alligator (*Alligator mississippiensis*), are commonly found in the lake edge communities and surrounding swamps.

Lake Waccamaw State Park is an important regional recreation resource. The park offers a peaceful, natural setting for varied recreational activities such as hiking, camping, picnicking, fishing, and nature study. The sandy lake bottom and clear water is attractive for wading and swimming, and nearby ramps provide access for boaters. Access to the lake and Waccamaw River is also provided at the dam. The primary interpretive theme focuses on the unique ecosystem of this Carolina bay, particularly its water chemistry and the diversity of aquatic life. Recreational activities are appropriately limited to preserve the quality of the recreational experience and to protect the park's outstanding natural resources. Land and Water Conservation Fund grant assistance, used to partially develop the park in the mid 1980s, requires that the park be retained and used for public outdoor recreation.

Lake Waccamaw State Park offers exceptional scenic vistas of the lake and its shoreline as well as views of sailboats and other watercraft on the lake. The broad expanses of water, grass beds in the lake, lovely lakeside flora, the barren sand lake rims, and the dense bay forests are in stark contrast to one another. In places, beautiful majestic bald cypress trees hung with Spanish moss line the shore or grow in the shallow water. The trails offer opportunities to walk through and view a variety of natural communities such as densely vegetated bog areas of Carolina bays and pine forests. The digging of canals, private development of lakefront cabins and houses on small lots, and a road along the lake rim have altered most of Lake Waccamaw's shoreline outside the park. The park serves to protect the remaining undeveloped lakeshore and preserve its natural beauty.

The name "Waccamaw" comes from its earliest inhabitants, the Waccamaw-Siouan, who settled in the area after A.D. 1000. Many artifacts from 100 to 1700, including beads, pipes, grinding stones, dugout canoes, and fragments of pottery have been found in and around the lake.

Lake Waccamaw State Park exists so that its valuable geological, biological, recreational, scenic and archaeological resources can be protected and because of the lake's value as a public trust resource. The Division of Parks and Recreation is charged with preserving these resources and providing park experiences that promote pride in and understanding of North Carolina's natural heritage.

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III. SUMMARY OF INTERPRETIVE THEMES

The 1987 State Parks Act defines the purposes of the state parks system. It establishes that:

> *The State of North Carolina offers unique archaeologic, geologic, biologic, scenic and recreation resources. These resources are part of the heritage of the people of this State. The heritage of a people should be preserved and managed by those people for their use and for the use of their visitors and descendants.*

It further provides that:

> *Park lands are to be used by the people of this State and their visitors in order to promote understanding of and pride in the natural heritage of this State.*

One of the best methods of meeting these purposes is through environmental education. The definition of environmental education as set forth in *The North Carolina Environmental Education Plan* is given below.

> *Environmental Education is an active process that increases awareness, knowledge and skills that result in understanding, commitment, informed decisions and constructive action to ensure stewardship of all interdependent parts of the earth's environment.*

Lake Waccamaw is one of the largest bay lakes in the world. With its unique water chemistry, large numbers of freshwater mussels and endemic fish, this lake is truly one of a kind! The park staff provides a variety of environmental education and interpretive programs to encourage protection of the lake's water quality and biodiversity. Because mussels, fish and snails are not easily viewed by the park visitor, exhibits in the visitor's center and along park trails play a major role in raising awareness of, and fostering appreciation for the lake's unique fauna and flora.

Lake Waccamaw State Park has three primary themes and eight secondary themes. In priority order, the primary themes are diversity of aquatic life, the unique water chemistry, and the origin of Carolina bays.

PRIMARY INTERPRETIVE THEMES

Diversity of Aquatic Life

This primary theme explores the amazing diversity of animal life found in the lake with a focus on freshwater mollusks and endemic fish. Of all the Carolina bays, Lake Waccamaw has the greatest number of aquatic species. It also has one of the largest populations of freshwater mussels in the state, estimated at over one billion individuals. The park's Environmental Education Learning Experience (EELE) includes hands-on activities that allow students to study

and inventory freshwater mussels. Major exhibits in the park visitor's center allow visitors to study the lake's fish, snails and mussels without getting wet!

Unique Water Chemistry

Most bay lakes have acidic waters, but Lake Waccamaw has a pH of nearly 7.0 (neutral). The limestone formation in and around the lake buffers the tannic acids flowing into the lake from adjacent swamps. This unique water chemistry allows the lake to support a wide variety of freshwater mussels, snails and fish. Programs and exhibits in this theme area help visitors explore the concept of pH by comparing the acidity of common household liquids with that of Lake Waccamaw and other nearby lakes. In addition, the park hosts seminars and advanced classes in other aspects of water chemistry. The need to protect the lake's water quality is emphasized in all the interpretive programs, exhibits and educational materials.

Origin of Carolina Bays

Most visitors are intrigued by the mysterious origins of the Carolina bays. The park staff provides programs and exhibits that demonstrate when and how bays may have formed and evolved to their current conditions. Although scientific theories are highlighted, the visitors are encouraged to use their imaginations to develop theories of their own.

SECONDARY INTERPRETIVE THEMES

Secondary themes for the park support and supplement the primary themes, and are listed below.

- Life on the Sand Rim
- Natural Communities within the Watershed of Lake Waccamaw
- Role of Prescribed Fire in Maintaining Natural Communities
- Carnivorous Plants
- Endangered Species
- Water Safety
- Alligators
- Hydrology of the Lake and Its Relationship to the Regional Aquifer
- Annual Mayfly Hatch and Its Relationship to Water Quality and Chemistry

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IV. PARK AND RECREATION DEMAND AND TRENDS

ANNUAL VISITATION TRENDS

Lake Waccamaw State Park's annual visitation for the years from 1994 through 2006 is shown below in Figure IV-1. Visitation at Lake Waccamaw State Park is recorded by a vehicle traffic counter that is located just inside the park gate on the main entrance road to the park. Another traffic counter was added in 2004 at the dam access, located at the end of Waccamaw Shores Road. The traffic counter at the dam access also records traffic that turns around at the dead end road, so some of this traffic is not related to visiting state park facilities. Park visitation has been generally higher since completion of the park visitor's center in 1998. A per-vehicle multiplier of four persons is used.

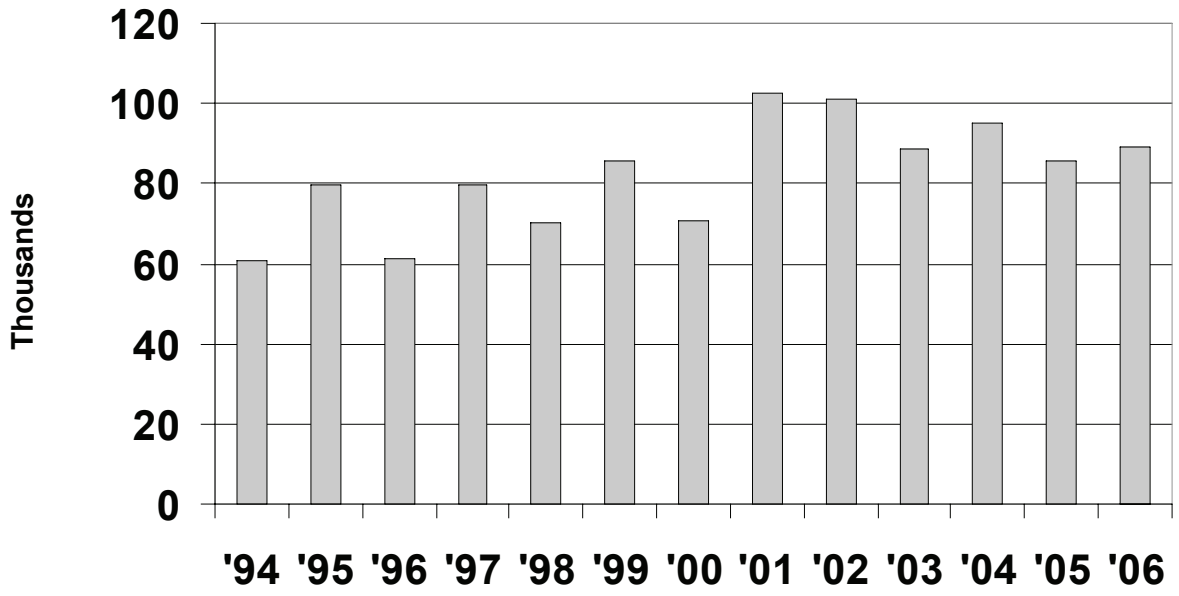

Figure IV-1. Annual Visitation: 1994 - 2006

MONTHLY VISITATION TRENDS

Figure IV-2 shows the average monthly visitation for the four years ending in 2003. Lake Waccamaw State Park's monthly visitation increases in the spring as the weather warms, peaks in June and July, and then decreases each month through the end of the year. The monthly visitation pattern suggests using seasonal and peak load personnel to assist in months of higher visitation. Where possible, staff vacation and other leave should be scheduled at times other than the higher visitation months.

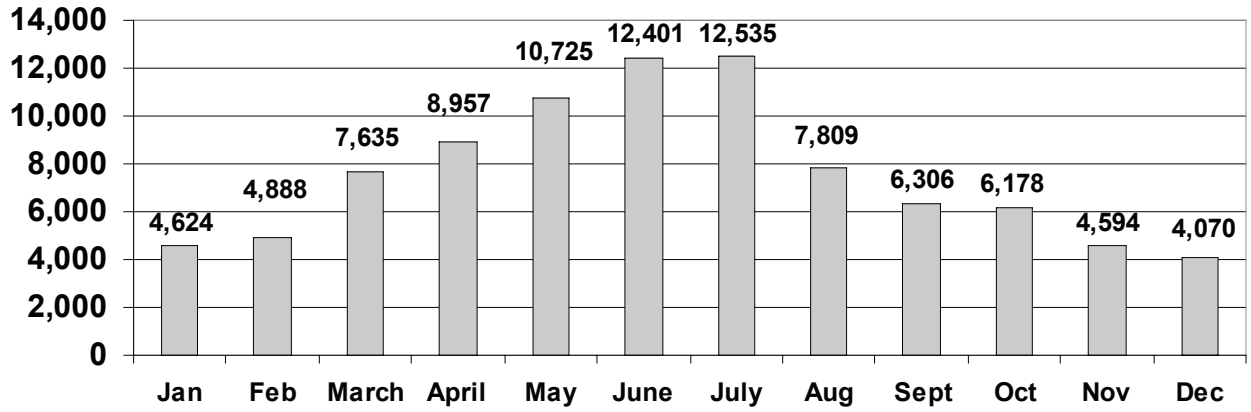

Figure IV-2. Average Monthly Visitation: 2000-2003

VISITOR INFORMATION

In 1987, the United States Forest Service was contracted to conduct a Public Area Recreation Visitors Survey (PARVS) for the North Carolina State Parks System. The survey was designed to identify visitor socio-economic characteristics and economic contributions to the state's economy. While Lake Waccamaw State Park was not one of the eight parks involved in the survey, general information concerning state park visitors is useful in assessing visitation trends at the park.

Why do people visit state park units? The convenient location was cited by 31 percent of the respondents; 25 percent thought other areas were too crowded; 21 percent liked the quality facilities; 8 percent wanted to try a new area; 7 percent enjoyed the scenic beauty; and 6 percent came to see the attraction.

More than one third of state park visitors come from within a 30-mile radius (37 percent), while 17 percent come from 30 to 60 miles away. Survey respondents indicated that the parks were their sole destination 86 percent of the time. While many visitors come from nearby, the average one-way distance traveled was 139 miles. Approximately 25 percent of state park visitors come from out of state. Visitors averaged 4.1 trips per year to North Carolina state parks.

Seventy-eight percent of those surveyed indicated that they were return visitors. The average number of return trips per year was six. Sixty-one percent of visitors statewide came with family members, 16 percent with friends, and 7 percent with both family and friends. Ten percent of visitors came alone. Visitors also came in small numbers in organized groups and multiple families.

PARVS data indicates that 16.8 percent of groups surveyed used more than one car, and that the average number of persons per car was 3.0. The average age of the park visitor was 38.2 years. The age distribution was as follows:

Table IV-1. Percent of Visitors by Age Group

Under 6	6-12	13-18	19-25	26-35	36-45	46-55	56-65	Over 65
6.7	11.6	10.6	12.5	20.1	16.9	0.9	7.3	4.4

Since over 18 percent of visitors are under the age of 13, a demand exists for children's programs and facilities. Approximately 12 percent of visitors are 56 and older. This older segment of the general population will be increasing, and as it does, demand for improved quality, accessibility, and safety should increase.

OUTDOOR RECREATION PARTICIPATION IN NORTH CAROLINA

The five most popular outdoor recreation activities in North Carolina are walking for pleasure, driving for pleasure, viewing scenery, participating in beach activities, and visiting historical sites. Three out of every four households participated in walking for pleasure at least once in the past 12 months (Table IV-2). In addition to the five most popular activities, over 50 percent of the households responding to a 1989 survey participated at least once in the following activities: swimming (in lakes, rivers, or oceans), visiting natural areas, picnicking, attending sports events, visiting zoos, and freshwater fishing.

The North Carolina Outdoor Recreation Participation Survey was mailed to 3,100 randomly selected residents in the spring of 1989. Forty-five percent, or 1,399 people, returned completed surveys. Each person receiving the survey was asked to estimate the number of times that household members had participated in each of 43 activities. The survey results provide good insight into the current participation of North Carolinians in a wide range of outdoor recreation activities. The survey results also closely mirror those of the National Survey on Recreation and the Environment conducted in 1994-1995 and 2000.

Table IV-2. Outdoor Recreation Activities Ranked by Popularity.

RANK	ACTIVITY	PERCENTAGE OF HOUSEHOLDS PARTICIPATING
1.	Walking for Pleasure	75%
2.	Driving for Pleasure	72
3.	Viewing Scenery	71
4.	Beach Activities	69
5.	Visiting Historical Sites	62
6.	Swimming (in Lakes, Rivers, and Oceans)	54
7.	Visiting Natural Areas	53
8.	Picnicking	52
9.	Attending Sports Events	52
10.	Visiting Zoos	51
11.	Fishing - Freshwater	50
12.	Use of Open Areas	41
13.	Swimming (in Pools)	40
14.	Fishing - Saltwater	38
15.	Attending Outdoor Cultural Events	35
16.	Bicycling for Pleasure	32
17.	Other Winter Sports	31
18.	Camping, Tent or Vehicle	29
19.	Softball and Baseball	28
20.	Hunting	28
21.	Use of Play Equipment	28
22.	Power Boating	26
23.	Trail Hiking	26
24.	Jogging or Running	24
25.	Basketball	24
26.	Nature Study	22
27.	Golf	22
28.	Target Shooting	20
29.	Water Skiing	19
30.	Camping, Primitive	14
31.	Tennis	14
32.	Use Motorcycles, Dirt Bikes, ATVs	13
33.	Use Four Wheel Drive Vehicles	13
34.	Canoeing and Kayaking	13
35.	Horseback Riding	12
36.	Volleyball	12
37.	Downhill Skiing	12
38.	Football	11
39.	Soccer	7
40.	Sailboating	7
41.	Skateboarding	6
42.	Cross Country Skiing	2
43.	Windsurfing	1

PRIORITIES OF PUBLIC OUTDOOR RECREATION FUNDING

The North Carolina Outdoor Recreation Survey asked residents a series of questions in order to identify and rank order future demand for various types of public outdoor recreation activities. Future demand was determined by asking them which activities they would have tried more often had adequate facilities been available. Respondents were then asked to rank these activities in order of importance. A scoring system was used assigning each activity a rating of high, moderate or low future demand based on the survey results.

In the second part of the analysis, the respondents' level of support for publicly funded outdoor recreation activities was determined by asking them to identify and rank those activities to which government should give highest priority when spending public money. The same scoring system used to analyze unmet demand was then applied to the survey results, with each activity receiving a high, moderate or low rating in public support for public funding.

In the final part of the needs analysis, the two ratings for each activity were combined to produce a score from one to nine that reflected both future demand and public funding priorities. The activities that ranked high in both future demand and support for public funding received the highest priority in the needs assessment. Support for public funding was given higher priority than expressed demand (Table IV-3).

Table IV-3. Priorities for Future Outdoor Recreation Activities

ACTIVITY	CODE	FUTURE DEMAND	SUPPORT FOR PUBLIC FUNDING
Walking for Pleasure	1	High	High
Camping, Tent or Vehicle	1	High	High
Picnicking	1	High	High
Beach Activities	1	High	High
Fishing - Freshwater	1	High	High
Attend Outdoor Cultural Events	1	High	High
Visiting Natural Areas	2	Moderate	High
Use of Play Equipment	2	Moderate	High
Visiting Zoos	2	Moderate	High
Visiting Historical Sites	2	Moderate	High
Bicycling for Pleasure	3	High	Moderate
Swimming (in Pools)	3	High	Moderate
Viewing Scenery	4	Moderate	Moderate
Hunting	4	Moderate	Moderate
Trail Hiking	4	Moderate	Moderate
Use of Open Areas	4	Moderate	Moderate
Target Shooting	4	Moderate	Moderate
Swimming (Lakes, Rivers, Ocean)	4	Moderate	Moderate
Fishing - Saltwater	4	Moderate	Moderate

AREA OUTDOOR RECREATION OPPORTUNITIES

Bladen Lakes State Forest

The 32,237- acre Bladen Lakes State Forest in southeastern North Carolina is considered part of the state's Coastal Plain forest. Tree species include mixed hardwoods, Atlantic white cedar, loblolly, longleaf, and slash pine, as well as sweetgum, red maple, and Bald cypress. The forest also contains areas that have been identified and protected as Natural Heritage Preservation Sites. There are several areas set aside for protection and enhancement of red-cockaded woodpecker colony sites in longleaf pine. Some longleaf pine stands are also dedicated for the production and harvest of pine straw, used as mulch. Much of the forest is managed as game lands by the Wildlife Resources Commission.

Bushy Lake State Natural Area

Bushy Lake is an excellent example of a "low bay", with its interior having the appearance of an open savannah with scattered trees, shrubs, and a variety of grasses. Although not a lake, it does contain shallow water for much of the year, as well as several small ponds. Limited access is provided for low-intensity recreational use such as nature observation, hiking, and environmental education. Park staff from Jones Lake State Park manages Bushy Lake, which is located in Cumberland County.

Green Swamp

The Green Swamp, located near Lake Waccamaw State Park, is an area of major biological significance in North Carolina. The U.S. Department of the Interior designated it as a national natural landmark in 1974. The 15,722-acre Green Swamp Preserve features examples of pine savannas, bay forests and pocosins with hundreds of different plant species. Unusual animals found in the swamp include the endangered red-cockaded woodpecker, the eastern diamondback rattlesnake, Bachman's sparrow and the American alligator. The preserve is located in Brunswick County, five miles north of Supply. For more information on the Green Swamp, contact The Nature Conservancy.

Jones Lake State Park

Jones Lake State Park in Bladen County contains 1669 acres of land plus the 224-acre Jones Lake and 315-acre Salters Lake. A three-mile loop trail runs around Jones Lake and allows opportunities to experience the habitats of a Carolina Bay, while a one-mile trail journeys through bay forest and sand ridge communities. Jones Lake facilities include a visitor's center with exhibits, sandy beach, bathhouse, picnic area with one large shelter, pier and boathouse where canoes and paddleboats may be rented. A boat ramp is available for small watercraft. Nearby, twenty campsites are available with grills and picnic tables and restrooms and showers.

Lumber River State Park

Lumber River State Park, created in 1989, stretches 115 miles from NC 1412 in Scotland County downstream to the North Carolina-South Carolina state line. The slow-moving blackwater river offers opportunities for canoeing, boating, picnicking, primitive camping and fishing. Facilities

are primarily located at Princess Ann, on the west side of the river in Robeson County.

Singletary Lake State Park

Primarily used for organized group camping, Singletary Lake State Park has two group camps with mess halls and kitchens, cabins and washhouses. One of the group camps was constructed as a public works project during the Great Depression. The park contains the 572-acre Singletary Lake, a Carolina Bay, and approximately 650 acres of surrounding land located in Bladen County. All of the lake and its almost four miles of undeveloped shoreline lies within the state park. A 500-foot pier extends into the lake and provides a place for swimming and sunning, and a one-mile long trail travels near the lake and through nearby forest.

Turnbull Creek Educational State Forest

Located in Bladen County within Bladen Lakes State Forest, Turnbull Creek is one of six educational state forests developed as living environmental education centers. The forest is designed to promote better understanding of the value of forests. A 3.5-mile driving trail provides visitors with a look at all phases of forest management. Foot trails and picnic sites with tables and grills and one picnic shelter are also available.

White Lake

White Lake, located in Bladen County, covers 1068 acres. The lake's clear water makes it a popular recreational resource for swimming, boating and water sports. Various private rental accommodations are available. Private development rings most of the lake's shoreline, limiting public access.

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V. SUMMARY OF LAWS GUIDING PARK MANAGEMENT

There are many federal and state statutes, state and federal executive orders, and administrative rules and policies that govern the operation of the state parks system. This chapter includes a brief discussion of the primary legal basis for the existence and operation of the state parks system. It also includes other legal issues of particular concern at Lake Waccamaw State Park.

STATE LEGAL MANDATES

North Carolina Constitution

Article XIV, Section 5 of the North Carolina Constitution sets overall policy by broadly defining the conservation and protection of natural resources and the acquisition of such resources as a proper function of government. The amendment reads in part as follows:

> *It shall be the policy of this State to conserve and protect its lands and waters for the benefit of all its citizenry, and to this end it shall be a proper function of the State of North Carolina and its political subdivision to acquire and preserve park, recreation, and scenic areas, to control and limit the pollution of our air and water, to control excessive noise, and in every other appropriate way to preserve as a part of the common heritage of this state its forests, wetlands, estuaries, beaches, historical sites, open land, and places of beauty.*

State Parks Act

The State Parks Act (G.S. 113-44.7 through 113-44.14) sets forth a mission statement for the state parks system. It states that the system functions to preserve and manage representative examples of significant biological, geological, scenic, archaeological, and recreational resources, and that park lands are to be used by the people of the state and their visitors and descendants in order to promote understanding of and pride in the state's natural heritage.

The State Parks Act also calls for development and periodic revisions of a system plan to achieve the mission and purpose of the state parks system in a reasonable, timely, and cost-efficient manner. The Act describes the System Plan components and requires that public participation be a component of plan development and revisions.

The State Parks Act also calls for the classification of park resources and development of general management plans (GMPs) for each park. GMPs are to include a statement of park purpose, an analysis of major resources and facilities, and a statement of management direction.

Powers and Duties of the Department of Environment and Natural Resources

The Department is authorized to make investigations of the resources of the state and to take such measures as it may deem best suited to promote the conservation and development of such resources. In addition, the Department may care for state forests and parks and other recreational areas now owned, or to be acquired by, the state. (G.S. 113-8)

State Nature and Historic Preserve Dedication Act

The State Nature and Historic Preserve Dedication Act (G.S. 143-260.6) was authorized by Article 14, Section 5 of the North Carolina Constitution. It seeks to ensure that lands and waters acquired and preserved for park, recreational, and scenic areas for the purpose of controlling and limiting the pollution of air and water, controlling excessive noise, and in every other appropriate way preserving as a part of the common heritage of the state, continue to be used for those purposes. The State Nature and Historic Preserve Dedication Act provides a strong legal tool for protecting lands from incompatible uses. The addition and removal of lands to and from the State Nature and Historic Preserve require a vote of three-fifths of the members of each house of the General Assembly. The State Nature and Historic Preserve Dedication Act protects all land and water within Lake Waccamaw State Park's boundaries as of May 6, 2003.

Nature Preserves Act

The Nature Preserves Act (G.S. 113A-164) prescribes methods by which nature preserves may be dedicated for the benefit of present and future citizens of North Carolina. It authorizes a Natural Heritage Program to provide assistance in the selection and nomination for registration or dedication of natural areas.

The state may accept the dedication of outstanding natural areas by gift, grant, or purchase of fee simple title or other interest in land. Lands dedicated are held in trust by the state and are managed and protected according to regulations. They may not be used for any purpose inconsistent with the provision of the Nature Preserves Act or disposed of by the state without a finding by the Governor and Council of State that the other use or disposition is in the best interest of the state. Dedicated nature preserves highest and best use is contributing to public understanding of natural systems, scientific research, education about natural processes, habitat for rare species and natural communities, contemplation and compatible recreation, and preservation of natural beauty (N.C.A.C. 12H .0309).

Lake Waccamaw became a registered nature preserve November 28, 1979. The park's land acreage is excluded from the registered area. Management is to be in accordance with general recommendations contained in the registry agreement.

North Carolina Environmental Policy Act of 1971

Recognizing the profound influence that human activity has on the natural environment, the General

Assembly passed the Environmental Policy Act "*…to assure that an environment of high quality will be maintained for the health and well-being of all….*"

The Act declares that:

> *It shall be the continuing policy of the State of North Carolina to conserve and protect its natural resources and to create and maintain conditions under which man and nature can exist in productive harmony. Further, it shall be the policy of the State to seek, for all its citizens safe, healthful, productive, and aesthetically pleasing surroundings; to attain the widest possible range of beneficial uses of the environment without degradation, risk to health or safety; and to preserve the important historic and cultural elements of our common inheritance. (G.S. 113A-3)*

Archaeological Resources Protection Act

The Lake Waccamaw area is known to have been occupied by American Indian tribes. Unknown archaeological resources may exist, both within the existing park boundaries and in nearby areas. Development of recreational facilities should avoid destruction of these resources.

A permit is required from the Department of Administration, in consultation with the Department of Cultural Resources, to excavate, remove, damage, or alter any archaeological resource on state lands. Archaeological resources are defined as the remains of past human life or activities that are at least 50 years old and are of archaeological interest (G.S. 70-10).

State Lakes Statutes

Statutes that govern state lakes also protect Lake Waccamaw. State lakes are required to be retained by the state for public purposes (G.S. 143-3), and the state has authority to construct public facilities, regulate piers and docks, and make rules for operation of watercraft and use of water by the public (G.S. 113-34).

While there are other General Statutes that concern the state parks system and the environment, the above-described statutes, along with Article XIV, Section 5, of the North Carolina Constitution, largely define the purposes of the state parks system and serve to guide its operation.

FEDERAL LAWS

Land and Water Conservation Fund Act of 1965

The federal Land and Water Conservation Fund Act (PL 88-578) offers protection and places restrictions on fund-assisted outdoor recreation areas. By virtue of receiving Land and Water Conservation Fund (LWCF) grant assistance, most of the state parks system - including Lake Waccamaw State Park - is subject to LWCF rules and regulations. Lake Waccamaw State Park has received one LWCF development grant, awarded in 1983 (Grant #37-00770), that was used for

initial recreational facility development.

Property acquired or developed in whole or in part with LWCF assistance cannot be converted to other than public outdoor recreation use without federal approval. A conversion may take place only if approved by the Secretary of the Interior, and only then if replacement property of equal fair market value and reasonably equivalent usefulness and location is made. Park land acquired at Lake Waccamaw State Park since the 1983 LWCF grant award does not fall under LWCF regulations.

LWCF requirements include: programming, operating and maintaining areas in a manner that encourages public participation; maintaining the property so it appears attractive and inviting to the public; maintaining property, facilities and equipment to provide for public safety; keeping facilities, roads, trails and other improvements in reasonable repair throughout their lifetime to prevent undue deterioration and encourage public use; keeping the park and facilities open for use at reasonable hours and times; and making future development meet LWCF rules and regulations. LWCF-assisted sites are periodically inspected by state and federal inspectors to ensure compliance with LWCF requirements.

The Americans With Disabilities Act

Title II of the ADA prohibits discrimination against any "*qualified individual with a disability*."

New Construction and Alterations

> *Buildings that are constructed or altered by, on behalf of, or for the use of a public entity shall be designed, constructed, or altered to be readily accessible to and usable by individuals with disabilities*. (Section 35.151 of Title II)

Existing Facilities

> *Structural changes in existing facilities are required only when there is no other feasible way to make the public entity's program accessible*. ("Structural changes" include all physical changes to a facility [28 CFR Part 35, Section 35.150, Title II of the ADA Section-by-Section Analysis].)

When alterations affect access to a primary function of a facility, the entity shall also make alterations to the path of travel to the area and bathrooms, public telephones, and drinking fountains serving the altered area.

Programs and Services

> *....each service, program, or activity conducted by a public entity, when viewed in its entirety, be readily accessible to and usable by individuals with disabilities.*
> (Title II, Section 35.150)

This includes, but is not limited to, the provision of auxiliary aids and services, including services and devices for effective communication where necessary to afford persons with disabilities an equal opportunity to participate in and enjoy the benefits of a service, program, or activity conducted by a public entity.

Signs

A public entity must ensure that persons with impaired vision and hearing can obtain information regarding the location of accessible services, activities, and facilities. Signs must be provided at all inaccessible entrances to each facility directing users to an accessible entrance or to a location where information can be obtained about accessible facilities. The international symbol for accessibility must be used at each accessible entrance to a facility. (Title II, Section 35.163)

Clean Water Act

Lake Waccamaw State Park's sensitive wetland areas receive protection from Section 404 of the federal Clean Water Act. The Act prohibits the discharge of dredge or fill materials into waters, including wetlands, without a permit from the U.S. Army Corps of Engineers. Activities in wetlands for which permits may be required include but are not limited to: placement of fill material; ditching activities; land clearing involving relocation of soil material; land leveling; most road construction; and dam construction (33 USC 1344). The Division will avoid undertaking construction located in wetlands unless there is no practical alternative and all practical measures are taken to minimize harm to the wetland.

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VI. NATURAL AND CULTURAL RESOURCE MANAGEMENT

NATURAL RESOURCE MANAGEMENT POLICY

The Division of Parks and Recreation's approach to natural resource management is directed by the North Carolina Constitution and the State Parks Act, both of which require the prudent management of natural resources. The constitution sets the overall policy by broadly defining the conservation and protection of natural resources and the acquisition of such resources as a proper function of government. The State Parks Act states that unique archaeological, geological, biological, scenic and recreational resources are a part of the heritage of the people that "*...should be preserved and managed by those people for their use and for the use of their visitors and descendants."*

The North Carolina State Parks System plays an important role in maintaining, rehabilitating and perpetuating the state's natural heritage. The natural resources of the state parks system are: high quality, rare or representative examples of natural communities; native plants and animals; geological features and landforms; water resources; and the natural processes that affect these resources. The primary objective in natural resource management will be the protection of natural resources for their inherent integrity and for appropriate types of enjoyment while ensuring their availability for future generations.

It is the Division's policy that natural resources will be managed by allowing natural environments to evolve through natural processes with minimal human influence. Natural resource management will not attempt solely to preserve individual species or processes; rather, it will attempt to maintain all the components and processes of a park's naturally evolving ecosystems. When intervention is necessary, direct or secondary effects on park resources will be minimized to the greatest extent possible. Intervention of natural processes may occur:

1. To correct or compensate for the previous human disruption of natural processes;
2. To protect, restore or enhance rare species and natural communities;
3. To protect, restore or enhance significant archaeological resources;
4. To construct, maintain, improve or protect park facilities; and,
5. To prevent danger to human health or safety around park facilities.

All park facilities will be designed, constructed and maintained to avoid adverse impacts to high quality natural communities, rare plant and animal species, major archaeological sites and other significant natural and cultural resources.

NATURAL COMMUNITIES

Community descriptions follow the *Classification of the Natural Communities of North Carolina: Third Approximation* (Mike Schafale and Alan Weakley, 1990).

Coastal Fringe Sandhill

This fire-adapted community features an open to sparse canopy of longleaf pine *(Pinus palustris),* sometimes mixed with loblolly pine *(Pinus taeda).* It is distinguished from Pine/Scrub Oak Sandhill and Xeric Sandhill Scrub by the occurrence of maritime-associated species such as sand live oak *(Quercus geminata),* live oak *(Quercus virginiana),* Darlington oak *(Quercus hemisphaerica),* yaupon *(Ilex vomitoria),* and reindeer lichen (*Cladina* sp.). Shrubs include huckleberry *(Gaylussacia sp.),* inkberry *(Ilex glabra),* wax myrtle *(Myrica cerifera),* and wild olive *(Osmanthus americanus).* The herb layer at Lake Waccamaw features wiregrass *(Aristida stricta).* At Lake Waccamaw, Coastal Fringe Sandhill is found east of the picnic area, where the Sand Ridge Nature Trail meets State Park Drive. This is a rare example in that it occurs farther inland than is the norm for this community type.

Pond Pine Woodland

Pond Pine Woodlands are distinguished from other peatland communities by the substantial pond pine *(Pinus serotina)* canopy. Other common tree species may include loblolly bay (*Gordonia lasianthus),* Sweetbay *(Magnolia virginiana),* red maple *(Acer rubrum),* and loblolly pine *(Pinus taeda).* The shrub layer is generally taller than that in High Pocosin. Commmon shrubs are swamp cyrilla *(Cyrilla racemiflora),* fetter-bush *(Lyonia lucida),* maleberry *(Lyonia ligustrina),* gallberry *(Ilex coriacea),* inkberry *(Ilex glabra),* and blue huckleberry *(Gaylussacia frondosa).* Laurel-leaf greenbrier *(Smilax laurifolia)* is common, and there is little herb layer due to the dense woody cover. At Lake Waccamaw State Park, Pond Pine Woodland is found between the picnic area and the lake.

Natural Lake Shoreline

This community type refers to the landward shoreline zone of a large natural lake. Like most of North Carolina's natural lakes, Lake Waccamaw is surrounded by peatland and is rimmed mainly by organic soils, but sections of the park's lakeshore are sandy. A number of rare and endemic plant species, including carnivorous plants such as Venus flytrap *(Dionaea muscipula),* are found in the vegetative communities that ring the lake.

Coastal Plain Levee Forest (Blackwater Subtype)

Levee Forests are found on alluvial deposits in or adjacent to a river and are affected by the forces of the river. New deposits may create new sites for establishment of a Levee Forest community, or vegetation may be disturbed by flooding. Levee Forests tend to be slightly higher in elevation than Cypress-Gum Swamps and to include more oak

(Quercus sp.), birch *(Betula sp.)*, and pine *(Pinus sp.)* species than baldcypress *(Taxodium distichum)* or swamp tupelo *(Nyssa biflora)*. At Lake Waccamaw State Park, this community is found on alluvial deposits of the Waccamaw River.

REGISTERED NORTH CAROLINA NATURAL HERITAGE AREA

Lake Waccamaw represents a nationally significant aquatic system consisting of a water-filled Carolina bay hosting several endemic fishes and mollusks as well as a number of rare plant species in and around the edge of the lake. The five mollusks that occur only in this lake are: Waccamaw fatmucket (*Lampsilis fullerkati)*, Waccamaw snail *(Amnicola sp. 1)*, Waccamaw ambersnail *(Catinella waccamawensis)*, Waccamaw spike (*Elliptio waccamawensis*), and Waccamaw siltsnail *(Cincinnatia sp. 1).* Other mollusks, including Tidewater mucket *(Leptodea ochracea)*, occur at just a few other sites in the state. The endemic lake fishes include the Waccamaw silverside (*Menidia extensa)* and Waccamaw darter *(Etheostoma perlongum).* The Waccamaw killifish (*Fundulus waccamensis)* has been found in only one other location. Rare plants found along the lakeshore include Venus-hair fern (*Adiantum capillus-veneris)*, Green-fly orchid (*Epidendrum magnoliae)*, Seven-angled pipewort (*Eriocaulon aquaticum*), and narrowleaf cowlily *(Nuphar sagittifolia)*.

NATURAL HERITAGE ELEMENT OCCURRENCES

In addition to the endemic and rare species named in the previous section, Natural Heritage Element Occurrences include the bald eagle *(Haliaeetus leucocephalus)* and American alligator *(Alligator mississippiensis)*, each threatened at both the state and federal levels; state-rare lace-lip ladies' tresses *(Spiranthes lacinniata)*, considered imperiled at the state level; Venus flytrap *(Dionaea muscipula)*, endemic to the Carolina coastal plain and a state and federal species of special concern; and horned bladderwort *(Utricularia cornuta)*, considered critically imperiled to imperiled at the state level.

NATURAL AND CULTURAL RESOURCE MANAGEMENT ISSUES

Division of Parks and Recreation staff identifies natural and cultural resource management issues as a component of the general management plan process and groups them according to the categories shown in Table VI-6. Staff assigns a high, medium or low priority to each issue using the criteria described at the end of the table. The Division's Natural Resources Program will work with field staff to address the various management issues following the priorities shown. A more detailed description of the six high priority issues follows the table.

Table VI-1. Resource Management Issue Summary

Category	Subcategory	Project Description	Priority *
Animal Management	Inventory Deficiencies	Need for terrestrial species surveys.	Medium
		Aquatic survey of mussels and fish species.	Medium
	Rare Species Management	Continue to monitor reptile species.	Medium
	Nuisance Animals	Continue educational efforts about alligators. If Regal Ridge landfill opens, develop a monitoring program for sea gull populations.	High Low
Botanical Resource Management	Exotic Species Management	Based on the 2000 exotic species inventory, privet, lespedeza, Japanese honeysuckle, and multiflora rose were identified as the main exotic species. Within the Lake, alligatorweed is present in the canals and along the shoreline but not on park property. Kudzu is also present along the park boundaries.	High
	Inventory Deficiencies	All existing botanical surveys need to be compiled and indexed.	Medium
		A natural community map is needed for the park.	Medium
	Rare Species Management	Continue to search for rare species in the park and monitor new populations.	Medium
		Need to restore xeric sandhills scrub community that is currently in pine plantation.	High
Cultural Resources	Cultural Resources	Restoration of canoes found in the lake needs to occur.	Low
Infrastructure Management	Environmental Compliance for Planned Construction Projects	Environmental review of pine plantation restoration will be necessary.	High
		Review for upcoming construction projects (campgrounds).	Low
	Septic/Wastewater Management	Potential for retirement of current well will require closure.	Low
	Trails Management	Lakeshore trail is a potential problem related to overuse.	Medium
		ATV use coming from International Paper has been an issue in the past.	Low
Land Use Management	Boundary Management	Issues related to leased hunting on International Paper land and hunting on park property.	Medium
		Boundary of property near the dam is in question.	Medium
	Fire Management	Staff is unable to keep-up with prescribed burning needs at the park.	High
	Trash and Debris Disposal	Trash from boats and piers is heavy on the Lake.	Medium
	Viewshed Management	Viewshed issues may be associated with the new landfill and telephone lines.	Low
Visitor and Recreational Resource Management	Soil compaction	Soil compaction is occurring around the picnic area and campgrounds.	Medium
Water Resource Management	Riparian Buffer Zone Protection	Stormwater management study of Lake Waccamaw needs to be implemented.	High
		Review information on the installation of a weir at the canal outlet to Lake Waccamaw.	High
	Water Pollution	Impacts of the canal on lake water quality need to be studied.	Medium
		Hydrology of the area needs to be studied and restored if possible.	Medium
		Potential impacts from the proposed landfill.	Low
		Mosquito spraying may affect water quality within the lake.	Medium
		Individuals living at the lake are spraying for aquatic weeds.	Medium
		Park access road is sinking and causing erosion impacts.	Medium

***** Explanation of priority codes

High If the resource management activity is not undertaken in the near future there is a distinct possibility that natural resources will be compromised. These issues should be addressed within the next five years.

Medium Although there is a possibility that resources could be compromised, the priority is not as critical as the high priority projects.

Low Projects with low priority have significantly less chance for compromise of the natural resources if the project is not undertaken in a timely fashion or the project may depend on completion of other projects.

Nuisance Animal Management

The Lake Waccamaw area is important alligator habitat. Conflicts between humans and alligators (or pets and alligators) become more likely when human behavior attracts alligators to areas frequented by humans. The biggest problem behaviors are the feeding of alligators and the feeding of waterfowl (which serves to attract alligators). Through park programs and newspaper articles, park staff will continue to educate visitors and local residents not to feed or otherwise attract alligators.

Exotic Species Management

Based on the 2000 exotic species inventory, Chinese privet (*Ligustrum sinense*), lespedeza *(Lespedeza cuneata),* Japanese honeysuckle *(Lonicera japonica),* and multiflora rose *(Rosa multiflora)* have been identified as the main exotic species. The park requires control plans for each of these exotic species. Alligatorweed (*Alternanthera philoxeroide)* is present in the canals and along the lake shoreline but not on park property. Kudzu (*Pueraria montana)* is also present along the park boundaries. These species should be monitored to avoid problems in the park.

Rare Species Management

A restoration site has been identified on the sand ridge about a half-mile south of the visitor center, where a pine plantation should be restored to a Xeric Sandhill Scrub community. This community type is known to support a number of rare plant species, especially in the herb layer.

Environmental Compliance for Planned Construction Projects

Environmental review of the pine plantation restoration (discussed above) will be necessary.

Fire Management

Currently about 350 to 400 acres are under burn prescription, and more land should come under prescription. Staff are currently unable to keep up with prescribed burning needs at the park.

Riparian Buffer Zone Protection

A lakewide stormwater management study has been completed and needs to be implemented by the town and local stakeholders. Park staff are working with the town to protect water quality and control invasive species by keeping canal water separate from the lake water. They are considering a plan to install a weir at the canal outlet to Lake Waccamaw.

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VII. PHYSICAL PLANT INVENTORY

ROAD AND PARKING SYSTEM

Background information

In March of 1990, the Institute for Transportation Research and Education (ITRE) conducted a road inventory at Lake Waccamaw State Park. Since that time, a park visitor's center has been constructed with a paved parking lot and changes to the road system. The revised figures for the road and parking system are:

Paved road miles - 2.0 miles;
Unpaved road miles - 1.22;
Paved parking lots – 3,862 square yards; and
Unpaved parking lot – 1,000 square yards.

The unpaved parking lot is located at the Waccamaw River access.

Description

The road system is comprised of a main park road that is approximately two miles in length. A feeder road off the main road connects to the visitor's center. The entrance road ends at the picnic area/maintenance area/group camp area. The entrance road is 20 feet wide with five-foot shoulders. The entrance road was realigned in 1999 to allow placement of the visitor's center on the right side of the road upon entering the park. The road that goes from the picnic area to the maintenance compound is a single-lane, dirt road with some gravel screenings. Pavement has an eight-inch stone base with two-inch asphalt depths. The main road, which was constructed in the mid1980s, was paved in 1991.

There are three major parking areas within the park. The picnic area has 40 spaces including two handicapped spaces. The visitor's center parking lot has 25 visitor spaces and five staff spaces, three handicapped spaces, and two bus parking spaces. The Waccamaw River Access has 25 spaces for fisherman and hikers to park.

Drainage is handled through concrete pipes that are located at low points along the roadways and parking lots. Most pipe culverts are concrete. There are four concrete catch basins located in the park. Since the soil is of a sandy texture, most run off is absorbed in the ground.

Current Conditions

The road and parking lots were constructed in the early 1980s on lands acquired from Federal Paper Company. The road was gravel for several years before it was paved in 1991. Culverts are in good condition. The main road is in fair to good shape. An excellent cover of centipede grass exists on the road shoulders.

Road Repair Needs and Costs

The main road has approximately 200 square yards of pavement that needs patching. Some edge patching is also needed. There is a minor drainage problem in the road ditches around the new visitor's center that needs some minor grading. The day-use parking area needs striping. The parking area at the Waccamaw River Access needs some gravel and additional grading.

Patching, grading for the drainage problems, and parking lot striping costs total approximately $4000. The present N.C. Department of Transportation maintenance funds can be used to fund these repair needs.

SEWER SYSTEM

Description

Each building that discharges sewer has its own separate sewer system, septic tank and nitrification drain lines. There currently are two sewer systems in operation. The sewer systems are as follows:

> Picnic Sewer System – Two 750-gallon septic tanks lie in a series with a distribution box. The drain field has four 100-foot lines. The system was installed in 1990.
>
> Visitor Center Sewer System - A 2500-gallon septic tank has a conventional distribution box. The drain field consists of six 100-foot drain lines. The system was installed in 1999.

Current Conditions

Overall, the sewer systems are in good shape. The picnic area sewer has never been pumped out and is in need of pumping. The visitor's center septic tank also needs pumping. The drain fields are in good shape.

Sewer Repair Needs and Costs

The septic tanks at the picnic area need a riser installed on both septic tanks and a filter installed in the last septic tank. The visitor's center system needs to be checked to see if it needs pumping, and a filter needs to be put on this tank. The risers were supposed to be manhole ring and covers, but a heavy steel lid was installed instead. The steel lids need to be replaced with manhole rings and covers, and a filter also needs to be installed.

Pumping of septic tanks for both facilities will cost $1,000. Installation of risers for three tanks will cost $1500.

WATER SYSTEM

Description

The park has two wells that supply drinking water to the park. Well number one is located between the picnic toilet building and the maintenance area. This well serves the picnic area, group camp and maintenance area with water. The well yield is unknown, but it is estimated to yield over one hundred gallons-per-minute. It has two 500-gallon pressure storage tanks that are located beside the well house. The well house is equipped with a chlorinator, and the water is pumped with a submersible pump of unknown size. It was installed in the mid 1980s.

Well number two is located at the visitor's center and was drilled in 1999. The well yield is unknown, but it is supposed to have a high yield also. The well house has a chlorinator and a water softener.

The distribution system has various sizes of pvc piping. All piping appears to be two inches or smaller in diameter.

Current Conditions

The wells and water distribution system are in good shape. The pumps and chlorinators are in fair shape and will need monitoring for replacement as needed.

Water System Repair Needs

Park staff has requested that consideration be given to connecting to the Town of Lake Waccamaw's water system for the visitor center. With construction of the residence, a tee will be placed at the house to facilitate hookup of the rest of the park in the future. In the meantime, the Superintendent will have the park wells tested to see if there are any problems. At this time no repair needs are recommended.

ELECTRICAL SYSTEM

The park power is all run underground and is supplied by Progress Energy Corporation. Pad-mounted transformers are located at all major buildings. The system was installed in the 1980s and is in good shape. No repairs are needed.

TELEPHONE SYSTEM

Bell South provides phone service. The park visitor's center has adequate phone service. There is one pay phone, located in the picnic area. The maintenance shop has a separate phone line. The phone system is in good condition, and no repairs are needed.

FACILITY INVENTORY AND INSPECTION PROGRAM

Buildings and other structures in state parks are necessary to provide services to park visitors. These structures are essential for protecting public safety, health, and welfare while providing opportunities for outdoor recreation. They include infrastructure, such as roads, parking lots, trails, and systems for potable water, electrical distribution, and sewage treatment. They also include operational and recreational facilities, such as campgrounds, picnic areas, concession buildings, boardwalks, park offices, residences, pump houses, warehouses, barracks, maintenance shops, visitor centers, etc. These facilities must be properly maintained to provide for a safe, continuous, and high-quality experience for park visitors.

Lake Waccamaw State Park Building Inventory

Pictures and descriptions of the buildings and other structures currently in use at Lake Waccamaw State Park and their repair needs follow:

Visitor's Center/Park Office: Building # 033011. Built in 1998. The one story wood-frame structure has 5,940 heated square feet and a cathedral ceiling. It contains administrative offices, an auditorium, exhibit hall, classroom and public restrooms. It is in excellent condition.

Toilet Building: Building # 033008. Built in 1990. The wood-frame, 540 square foot structure has a shingle roof and board and batten siding, with a one-person office and storage in the center. Located in the picnic area. It is in excellent condition.

Maintenance Office: Building # 033009. Built in 1991. The 288 square foot wood-frame structure has a 100 square foot addition built in 2004. An open lumber storage shed is attached. It is in good condition.

Maintenance Shop and Shed: Building # 033010. Built in 1991. The 616 square foot wood-frame structure is used as a maintenance shop. It is in good condition.

Pump House: Building # 033007. Built in 1990. The 81 square foot unheated wood-frame building is used as a pump house. It is in good condition.

Handicapped Pit Toilet: Building # 033002. Built in 1976. The 21 square foot unheated wood-frame primitive toilet was later renovated to be handicap accessible and now has 56 square feet. It is in fair condition.

Pit Toilet: (no photo) Building # 033005. Built in 1976. The 21 square foot unheated wood-frame primitive toilet is in fair condition.

Pit Toilet: (no photo) Building # 033006. Built in 1976. The 21 square foot unheated wood-frame primitive toilet is in fair condition.

Dam: Repairs are needed and design is underway.

HC Accessible Boardwalk & Shelters Near VC: Built in 1999, the 8' x 1,100' boardwalk has two 24' x 24' Sun Shelters. Project cost was $98,750.

Picnic Area Boardwalk: Renovated in 2001, the 8' x 700' boardwalk leads to a 24' x 24' Overlook Shelter (next photo), an 8' x 375' Pier, and two 32' x 50' patios (photo on following page). Renovation cost was $43,150.

Overlook Shelter: Located at the end of the picnic area boardwalk and start of pier.

Pier: View from the overlook shelter showing the patios on the picnic area pier.

Aluminum Equipment Storage Shed: Located in the maintenance area and used as a temporary storage shed.

MAJOR CAPITAL IMPROVEMENT PROJECT PRIORITIES

As a part of the general management plan process, proposed capital improvement projects at Lake Waccamaw State Park were carefully reviewed to determine if all projects were still needed and if changes to projects were desirable. In reviewing the proposed capital improvement projects, the general management plan evaluation team considered factors such as changes in environmental regulations, condition of facilities, natural heritage inventory, recreation demand, operational issues and needs, visitor safety considerations, State Parks Act mandates, and trends.

As a result of the general management plan review of the capital improvement projects, several project scopes were revised. Revisions include deletion of some work that had been accomplished by park staff, recombination of some projects to link related work elements, and the addition of new capital improvement needs that were identified.

Each project was then evaluated and ranked using the Division's Project Evaluation Program (PEP), thus creating a revised project priority list of capital improvement projects for Lake Waccamaw State Park, which is shown below. These projects were then combined with projects evaluated and ranked for other state park units, resulting in a priority list of capital improvement projects for the entire state parks system. A revised capital improvement priority list for Lake Waccamaw, descriptions of the capital improvement projects, and revised site plans showing location of the proposed development follow.

Revised Capital Improvement Priorities

Rank	Project Title	*Score	Cost
1	TENT/TRAILER CAMPGROUND DEVELOPMENT	653	$1,555,447
2	VISITOR'S CENTER DAY USE AREA DEVELOPMENT	619	392,339
3	RIVER ACCESS & TRAIL IMPROVEMENTS	615	829,188
4	MAINTENANCE AREA DEVELOPMENT	571	1,006,109
5	GROUP CAMP DEVELOPMENT	566	455,285
6	SOUTH DAY USE AREA DEVELOPMENT (Land Dependent)	565	1,390,282
7	BIG CREEK MULTIUSE AREA IMPROVEMENTS (Land Dependent)	427	256,964
TOTAL:			$5,885,614

***** *The score comes from the Division's Project Evaluation Program (PEP). The PEP uses an evaluation formula to rank projects that considers four factors: the objective of the project; the justification or urgency for funding; the estimated annual number of persons (visitors and/or employees) who are affected by the project; and the project's significance, ranging from local to national. The park superintendent, district superintendent, and division management evaluate projects. There are 15 objectives categorizing a project's purpose, and each project can have a primary and secondary objective.*

Capital Improvement Project Descriptions

1. Tent/Trailer Campground Development: This project includes an access path to the lake; a 650-foot long pier/handicapped walkway with three sheltered bench sitting areas; a dump station; a camping loop with 30 campsites with electrical hookups; an amphitheatre; septic tanks and septic fields; a shower house with solar power assistance; and tables, grills, lantern holders, and fire rings for 30 campsites. A ranger residence, the second in the park, will also be constructed as a part of this project. If an existing residence is acquired with land acquisition, construction of the residence will be deleted from the project scope.

2. Visitor's Center Day Use Area Development: This proposed development adjacent to the park visitor's center includes a 20-car paved parking lot expansion, an information kiosk, a 200-foot long pier with sheltered benches, a canoe rental area with a storage shed, a 12-table picnic shelter, kayaks and canoes, and picnic tables.

3. River Access and Trail Improvements: This project includes trail signage, improvements to three miles of trail, three primitive campsites with a pit toilet, canoe portage with a handicapped-accessible dock, split rail fencing and vegetative buffer, a pump station, an entrance sign, a boardwalk with a platform and a boat dock to connect the trail across the Waccamaw River. It also includes

a flush toilet building with solar power assistance, a handicapped parking space, an information kiosk, a force main extension to the town sewer, and four picnic tables.

4. Maintenance Area Development: This project includes any final demolition and/or relocation of the existing maintenance facilities if any remain at time of the project's beginning. It also includes security fencing, paved or graveled work and storage areas, a wash pad, a septic system, a flammable-storage building, miscellaneous maintenance equipment, a standard warehouse with a concrete floor, a six-bay vehicle and boat storage building, a 3,000 square foot maintenance building, and a vehicle lift. Buildings are to have solar power assistance. The maintenance area will be relocated from the current day use area in order to eliminate conflict of use.

5. Group Camp Development: The project includes removal of the 130 feet of the existing pier located beyond the first platform; demolition of any remaining existing maintenance facilities located in the group camp area (including the above ground gas tank); clearing and grading for three 100-foot group camp areas; improvements to the existing boardwalk/pier; expansion of the existing toilet building including adding two showers per side and solar power assistance; and grills, fire rings, lantern holders, and tables at the three campsites.

6. South Day Use Area Development: This project is dependent upon future land acquisition. The project scope includes removal of the existing group camps, installation of a 7,000-foot access road, a toilet building with solar power assistance, an eight-table picnic shelter, an information kiosk, and grills and picnic tables.

7. Big Creek Multiuse Area Improvements: This project is currently dependent upon future land acquisition. Development includes improvements to the boat ramp, a new dock, and a new boat lift. It also includes improvements to the existing multi-use building and an information kiosk. The final project scope of this project will be developed when and if land acquisition becomes imminent.

REVISED SITE PLANS

Revised site plans for Lake Waccamaw State Park are shown on the following four pages.

big creek
bella coola road
main line canal
boat ramp
O & M
Relocate O & M from current Day Use
staff access road
supt residence
visitor center
picnic shelter
park entrance
Multi Use
Enhance existing facilities:
- dependent on future acquisition of tract
- maintain public boat ramp (24 hour access)
- enhance existing multi-purpose building and grounds for use by park visitors
Day Use
Create Day Use area adjacent to Visitor Center:
- construct 12-table picnic shelter
- expand existing parking lot to accommodate Day Use
- extend existing pier for use as canoe/kayak rental area
- existing toilets in Visitor Center to serve Day Use
- construct information kiosk
- area to serve as trailhead

Lake Waccamaw State Park
Plan Update
3/05
EC
N↑
1 of 2
0
500
1000
2000
Tent/Trailer Camp
Construct Tent/Trailer Family Campground:
- remove hiking trails at campground area
- construct camping loop (+/-30 sites @ +/-50' o.c.) with water and electric hook-ups at all sites
- construct washhouse
- construct dump station
- construct pier for camper use only
- field locate outdoor amphitheatre in close proximity to tent/trailer campground
Group Camp
Convert from Day Use and O&M to Group Camp:
- remove all but one O&M building for use as remote storage
- existing pier to serve group camp, shorten to first platform
- existing parking lot to serve group camp
- convert existing toilet building to washhouse
- improve/install 3 group camp sites
Day Use
Convert from Group Camp to Day Use:
- remove group camps
- construct 8-table picnic shelter
- construct toilet building
- construct day use pier
- construct parking lot(s)
- construct information kiosk
- area to serve as trailhead
existing trail location (typical)
new trail location (typical)
current park boundary
state park dr
lakeshore trail
picnic shelter
toilet building
wash house
o&m storage
match line

Lake Waccamaw State Park

Plan Update 3/05

N↑ EC

2 of 2

0 500 1000 2000

Lake Waccamaw State Park
Plan Update
3/05
EC
N
River Access
0
50
100
200
existing private residence and pier
remove split rail fence; install new 6' privacy fence per code on property line with no through-access
install 30' vegetated buffer adjacent to private residence
allow upper half of open area to naturalize (do not mow)
keep lower half of open area mowed for open recreational use
picnic tables per future demand
install additional bollards as needed to control access to water & protect vegetation
shift small boat access north to align with boardwalk
revegetate as needed
construct boardwalk on lake side of dam to function as trail connector, observation platform, fishing pier, small boat dock
install information kiosk
install canoe portage around dam
install canoe platform
install split rail fence along road
plant native cypress at road and at parking lot
install toilet building and one handicap parking spot
park boundary
waccamaw shores rd
existing gravel lot with wheel stops
existing trash cans
existing fire hydrant
dam
lake waccamaw
lakeshore trail
waccamaw river

3/07

VIII. OPERATIONS ISSUES

INTRODUCTION

Division of Parks and Recreation staff identified the major park issues facing Lake Waccamaw State Park at the initiation of the general management plan process. The issues have been divided into three categories: natural resources (see Chapter VI), capital improvements (see Chapter VII) and operations. This chapter identifies park operations issues and makes recommendations for addressing them during the next five years. Operations issues for Lake Waccamaw State Park that are of significant concern are:

- Lack of housing
- Lake access for park vessels
- Service/maintenance road through picnic area
- Need for tent and trailer camping
- Park drinking water
- Pier and buoy inspections
- Prescribed burning needs
- Planning needs

LACK OF HOUSING

Lack of staff housing in the park has recently been addressed with the construction of a ranger residence. A second residence is needed to provide better coverage, particularly when one ranger is away or off duty. The need for a second residence will become greater with construction of a tent and trailer campground at the park. A capital improvement project to construct the campground exists but is not yet funded.

Recommendation

With additional land acquisition planned for the park, investigate land acquisition that might include a house that could adequately serve as a ranger residence. If such an acquisition cannot be found, construction of an additional ranger residence should be considered at the time the campground is developed.

LAKE ACCESS FOR PARK VESSELS

There is no boating access within the park. Until the recent acquisition at Deep Creek, the water along the park's shoreline was not deep enough for boating access. Currently, park staff must trailer boats to a county-operated public boat ramp outside the park entrance – at least a 30-minute round trip process - in order to respond to incidents, conduct patrols, inspect piers, and any other situation that requires staff

presence on the water. Staff time is wasted in loading and unloading and transporting vessels to and from the water. Furthermore, access to the lake from the closest boat ramp is hindered by a narrow, meandering channel that slows response time. During occasional periods of high water, the park boat will not pass under a bridge between the ramp and lake, requiring use of a more distant access that adds an additional hour to the round trip process.

Emergencies are seasonal and infrequent, but will certainly increase as lake use rises. In emergency situations, getting a boat out on the lake now takes far too long. In addition, there are 480 piers and nearly 300 mooring buoys at Lake Waccamaw, and each one requires an annual inspection.

Recommendation

Build or improve a facility that will allow a boat to be left on the lake. Recently acquired property at Deep Creek provides sufficient water depth to either improve an existing dock or construct a new one. This action will provide for quicker response time in emergencies and better efficiency when conducting pier inspections.

SERVICE/MAINTENANCE ROAD THROUGH PICNIC AREA

Currently, a road that bisects the picnic area provides access to the maintenance area, the primitive campsites, and a NOAA weather monitoring station. This road is gated to control non-authorized use, but its presence takes away from the visitor experience and is a potential safety hazard. Pedestrians commonly use the road as a pathway to the boardwalk that leads to the lake and pier. The picnic area currently has tables, grills, drinking water and restrooms.

Recommendations

Eliminate the existing problem of the road through the picnic area by relocating the maintenance area and by creating a new picnic area/day use area adjacent to the visitor's center. Convert the existing picnic area/day use area to a group camp. The existing parking lot can serve as parking for the group campers, and the existing toilet building can be converted to a washhouse. The new site plan update showing these recommended changes and the capital improvement projects to implement them are contained in Chapter VII.

NEED FOR TENT AND TRAILER CAMPING

In the 1977 *State Lakes Master Plan*, the bay lake area of southeastern North Carolina was seen as a potential recreational destination for families from across the state. Due to the lack of a tent and trailer campground at Lake Waccamaw, potential users are routinely turned away from Lake Waccamaw State Park and its recreational and educational opportunities.

The private campgrounds in the Lake Waccamaw area are mainly available on a long-term, seasonal basis and fail to provide an option for the casual weekend camper. Within ten years, Interstate 74 is slated by NCDOT to come through the area along the current route of US 74, bringing with it the chance to introduce even more visitors to Lake Waccamaw State Park. The interstate highway would be passing approximately six miles from the park entrance.

Recommendation

Develop a tent and trailer campground that would draw visitors to the Lake Waccamaw area to learn about one of the most truly unique lakes in North Carolina. A location for the proposed campground has been identified as a part of this general management plan and is shown on the site plan update contained in Chapter VII of this document. A capital improvement project to develop the campground is also described in Chapter VII.

PARK DRINKING WATER

The Lake Waccamaw Visitor's Center is currently supplied by well water that is consistently discolored and has a slight odor. Chlorination and water softening is also required to make the water useable. Monthly water testing is also a requirement of the current water system. The charge for this sampling service is $15.00 per month with a yearly contract fee of $180.00.

Recommendations

Consideration should be given to connecting the visitor's center to the Town of Lake Waccamaw's water supply. Consideration should also be given to connecting other park facilities when constructed. Connection of the visitor's center to the town's water can be achieved by running a line less than 1,000 feet in length. The town's supply is reliable and clean, and it will not require monthly water sampling. The connection fee is $250. Water will cost $11.75 a month per 4,000 gallons used.

As a part of the residence construction project, a tee will be installed that will facilitate connection of the park to town water in the future. In the meantime, the park superintendent will have tests run on the parks well water to identify any problems.

PIER AND BUOY INSPECTIONS

Lake Waccamaw has 495 piers and nearly 300 mooring buoys. Buoy and pier-related issues, both inspections and permit investigations, take a great deal of ranger time that could be used for interpretive and educational programming and other resource management responsibilities such as controlled burns. Requests for interpretive and educational programs have been turned down upon occasion. The recent focus on pier inspections and safety will only increase the amount of time that is required of park staff.

Recommendations

Establish a new ranger position that would improve Lake Waccamaw State Park's interpretive programs that emphasize one of North Carolina's most significant water resources. The position would also allow improved capability to annually inspect piers as required by State Lakes Regulations. As an alternative, contractual services could be used to address all or specific issues relating to private piers and buoys on Lake Waccamaw. Add a peak load office assistant for three months during the winter to assure that someone would be available in the visitor's center as a contact person on weekends and to assist with preparations for the permit renewal process that starts in March.

PRESCRIBED BURNING NEEDS

Lake Waccamaw State Park consists of ecosystems that for thousands of years were burned when frequent, natural fires moved through the Coastal Plain. These fires left behind a patchwork of diversity in plants and wonderful habitats for animal species in our area. Today, prescribed burning is used to mimic what was once the natural fire regime. Unfortunately, few parks in North Carolina - including Lake Waccamaw - have the staff or resources to adequately conduct burns. Ecological benefits are not the only concerns, for the reduction of hazardous fuel loads is a critical park safety issue at Lake Waccamaw as well as in many parks.

Recommendation

Establish an additional Park Ranger II position for Lake Waccamaw to take the lead role in developing burn prescriptions, preparing units for burning, and to participate on a Division burn team which would be equipped and outfitted to travel from park to park, depending on weather conditions, to assist staff in conducting burns. Individual parks could use memorandums of understanding in an effort to garner additional assistance from agencies such as The Nature Conservancy that also have an interest in mananging lands or in preserving biodiversity. An interagency fire council could be developed to discuss fire-related issues and be used in lobbying and educational efforts in the area of prescribed burning.

PLANNING NEEDS

The *Lake Waccamaw State Park Master Plan* was published in 1976 and has served to guide park development since that time. It is outdated and a new plan to guide future park development is needed. Land acquisition to date and future acquisitions may open options for different recreational uses and lead to the need for additional planning. While planning has been ongoing through the years, few of these ideas have been recorded in drawings or maps.

Recommendation

Develop an updated plan to guide current and future park development. (As a part of this general management plan, an updated plan to guide current and future development has been developed and is contained in Chapter VII.) Continue to review and update the development plan as needed in future revisions of the general management plan.

03/07

IX. LAND ACQUISITION

Several factors are considered in determining whether a piece of property is included in the acquisition plan. These include natural resource data, water quality data, existing identified needs, and development/conversion pressure on the property. These needs and threats are evaluated to determine what additional properties may be added to the acquisition plan for the state park. Land acquisition objectives for Lake Waccamaw State Park include: protect the lake and its water quality; provide a land base for access to the river at the dam; protect the Waccamaw River corridor; protect natural communities within the park; provide buffer and logical burn compartments; provide for recreational needs; and aid management of park property.

CURRENT ACQUISITION STATUS

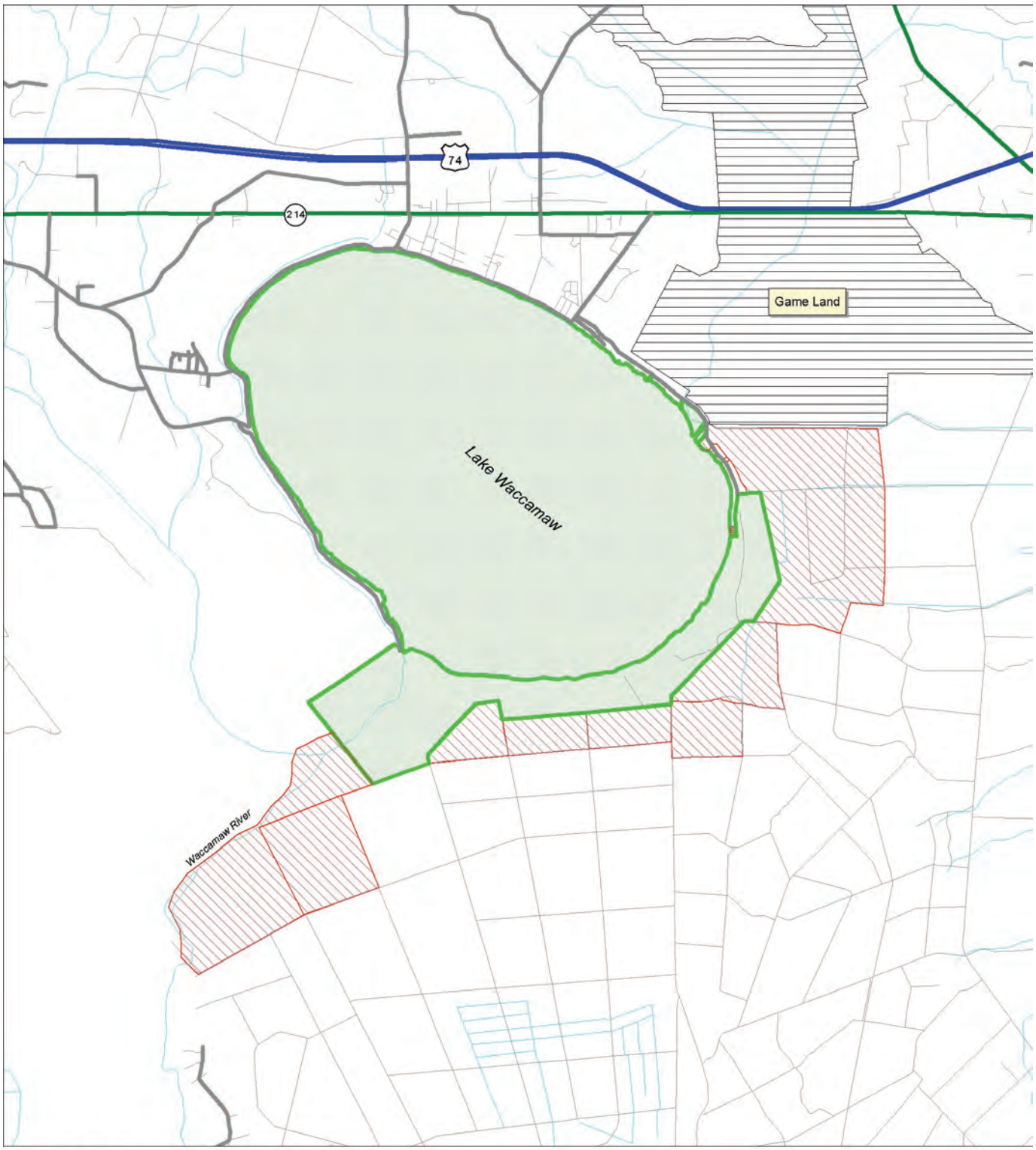
In 2005, Division staff worked on the acquisition of several tracts for inclusion in Lake Waccamaw State Park. Property at Big Creek was acquired in December 2005. Timberland to the east of the park is currently in negotiations, and this tract contains approximately 1,475 acres. In 2003, 12 tracts totaling over 4,000 acres were evaluated in the LEAP Program (Land Evaluation and Acquisition Priority). The land acquisition urgency at that time ranged from Very Low to Medium.

FUTURE ACQUISITION NEEDS

Additional acquisition needs are planned along the existing southern boundary of the park and down the Waccamaw River to improve access control, protect river corridor, protect natural resources and provide good prescribed burn unit boundaries. These properties cover approximately 4,066 acres, including the pending 1,475-acre tract. The existing boat ramp on the east side of Lake Waccamaw in also included in the acquisition plan in order to aid park operations and help meet recreational needs.

ACQUISITION SUMMARY TABLE

Current size of the park- land acres	(January 2006)	1,744 acres
Current size of the park- water acres		8,950 acres
Pending acquisition		1,475 acres
Planned land acquisition needs		2,591 acres
Total planned size of the park		14,760 acres



Lake Waccamaw
State Park

0 0.5 1 1.5 Miles

State Park
Future Need
WRC Game Land

N

December 2005